

5971

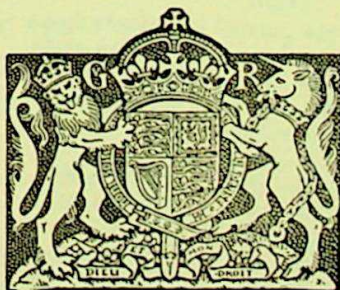
PATENTS FOR INVENTIONS

ABRIDGMENTS OF SPECIFICATIONS

CLASS 112

SEWING AND EMBROIDERING

PERIOD—A.D. 1921-25 [155,801—244,800]



LONDON
PRINTED UNDER THE AUTHORITY OF HIS MAJESTY'S STATIONERY OFFICE
By THE COURIER PRESS, BEDFORD STREET, LEAMINGTON SPA
PUBLISHED AT THE PATENT OFFICE, 25, SOUTHAMPTON BUILDINGS,
CHANCERY LANE, LONDON, W.C.2.

EXPLANATORY NOTE

The contents of this Abridgment Class may be seen from its Subject-matter Index, which includes all index headings, subheadings, and subdivisions allotted to this Class, as well as cross-references under them, although there may be no cases affected within the period covered by this volume. A revised edition of the *Abridgment-Class and Index Key* showing Abridgment Classes and Index Headings to which inventions are assigned in the official publications of the Patent Office is now published, price 7s. 6d. net.

It should be borne in mind that the abridgments are merely intended to serve as guides to the Specifications, which must themselves be consulted for the details of any particular invention. Printed Specifications, price 1s., may be purchased at the Patent Office or ordered by post, no additional charge being made for postage.

NOTE.—The Patent Office does not guarantee the accuracy of its publications, or undertake any responsibility for errors or omissions or their consequences.

SUBJECT-MATTER INDEX

Crochethooks. 166,855. 170,553. 170,755. 175,522. 180,538. 181,143. 183,564. 185,220. 188,616. 196,832. 215,914. 221,423. 223,113. boxes and cases for. *See* Boxes &c., [Class 18].

electroplating. *See* Electrolysis &c., [Class 41].

holders for. *See* Pencil &c. holders, [Class 146 (iii)].

making and treating by operations of interest apart from crochethooks. *See* separate headings, such as Metals, Cleaning &c., [Class 82 (ii)]; Metals, Shearing &c., [Class 83 (iv)].

trays and stands for. *See* Pen, pencil, and like trays &c., [Class 146 (iii)].

Darning. 159,770. 160,381. 162,450. 168,817. 180,730. 181,986. 197,559. 203,392. 206,886. 230,048. 231,402. 238,885. 241,672. 241,900. darning by stitching in sewing-machines. *See* Sewing-machines.

darning-looms used to make separate patches of fabric. *See* Looms, Kinds &c. of, [Class 142 (ii)].

lengths of thread, holders for. *See* Bobbin &c. cases, Domestic &c., [Class 18].

needles. *See* Sewing-needles &c.

needle-threaders. *See* Needle-threaders.

teaching. *See* Educational appliances, [Class 146 (ii)].

Fabrics formed by stitching together fibrous materials and threads.

225,737 [Appx]. 243,120.

machines for making. *See* Sewing-machines.

Knot-tying devices.

Excepting Net-making machines &c., [Class 74 (i)]; Sewing and embroidery, (*knotted stitches*).

knots other than those of reef, weavers', thieves', granny, and spooler's or thrum types. 167,753.

reef, weavers', thieves', and granny types—hand apparatus. 167,753. 185,308. 203,368. machines. 162,505. 163,225. 211,689. 230,351.

spooler's or thrum type, (*including* allied slip knots—

hand apparatus. 167,753. 168,626. 170,370. 189,609. 195,889.

machines. 173,775. 179,633. 201,598. 219,313. 220,366. 230,720. 238,301. 239,268. 242,563.

Needle - threaders. 159,452. 168,715. 169,875. 173,455. 179,855. 181,139. 184,411. 185,929. 190,640. 193,443. 227,073. 227,313. 229,461. 230,048.

Excepting devices for threading hook-needles in Sewing-machines.

Sewing and embroidery.

Excepting Bookbinding, [Class 16]; Brushes and brooms, [Class 19]; Brushes, Apparatus for making, (*sewing by*), [Class 19]; Crochet-work, [Class 74 (i)]; Darning; Stapling and discontinuous wire-stitching, [Class 89 (iii)].

appliqué lace, making. *See* embroidery below. basting. *See* stitches &c. below.

beads, attaching. *See* embroidery below.

bobbin, spool, and reel holders and cases. *See* Bobbin &c. cases, Domestic &c., [Class 18].

bobbins, spools, and thread reels. *See* Bobbins &c., [Class 120 (iii)].

bobbins, spools, and thread reels, winding. *See* Winding bobbins &c., [Class 120 (ii)].

boxes for enclosing sewing-requisites. *See* Boxes &c., [Class 18].

buttonholes, forms of. *See* Fastening, supporting, &c. wearing-apparel for wear, [Class 141].

buttonholes, stitching. *See* stitches &c. below. clamps or work-holders. *See* work-holders below.

cords, applying. *See* embroidery; misc; below. creasing work for sewing. *See* marking work &c. below.

drawn-thread work. *See* embroidery below.

embossing fabrics to imitate. *See* Embossing &c., [Class 100 (ii)].

embroidery. 157,682. 167,570. 168,358. 173,509. 183,553. 194,696. 204,615. 212,347. 243,120.

ornamenting fabrics by cords, spangles, and other materials secured by stitches not forming part of ornamentation. *See* Ornamenting fabrics, [Class 93].

float threads on fabrics, cutting or removing. *See* Fabrics, Finishing &c., [Class 42 (i)].

folding-instruments. *See* Folding edges of non-metallic sheet material, &c., [Class 42 (i)].

gathering-appliances. *See* Pleating &c., [Class 141].

gumming or pasting materials prior to sewing. *See* Coating surfaces &c. with liquid &c. materials, [Class 95].

Sewing &c.—cont.

hand sewing-tools. *See* Sewing-needles &c.
 hem-stitching. *See* stitches &c. *below*.
 knotted stitches. *See* stitches &c. *below*.
 lap-boards. *See* work-holders *below*.
 lengths of thread, holders for. *See* Bobbin &c. cases, Domestic &c., [Class 18].
 marked fabrics for sewing. *See* embroidery *above*.
 marking work for sewing and embroidery. 185,401. 191,146. 202,813. 233,122.
 printing. *See* Printing processes &c., [Class 100 (ii)].
 punching and perforating designs. *See* Punching and perforating machines &c., [Class 31 (ii)].
 stencils and stencilling-apparatus. *See* Stencils &c., [Class 100 (ii)].
 transferring designs. *See* Transferring designs &c., [Class 100 (ii)].
 miscellaneous—
 bristles and other pointing-materials incorporated with sewing-threads. 227,496.
 fringing. 157,533.
 seams, pressing. 159,972.
 mounts and settings for gems. *See* Jewellery, [Class 43].
 needles. *See* Sewing-needles &c.
 needle-threaders. *See* Needle-threaders.
 openwork effects, producing without stitching, by distending meshes or mechanically removing threads of fabrics. *See* Fabrics, Finishing &c., [Class 42 (i)].
 ornamental sewing or embroidery. *See* embroidery *above*; stitches &c. *below*.
 packing sewn or embroidered articles. *See* Packing &c., [Class 94 (i)].
 perforating and punching machines for leather, fabrics, and the like. *See* Punching and perforating machines &c., [Class 31 (ii)].
 pile or tufted fabrics produced by stitching. *See* Fabrics, Pile &c., [Class 142 (iv)].
 plaited soles, coiling and moulding otherwise than in sewing-machines. *See* Boots &c., Apparatus for making &c., [Class 17 (i)].
 pleating. *See* Pleating &c., [Class 141].
 pliers for tufting. *See* Sewing-needles &c.
 preparing lasted boots for sewing. *See* Boots &c., Apparatus for making &c., [Class 17 (i)].
 quilting-frames. *See* work-holders *below*.
 ripping or unpicking seams, appliances for. *See* String &c. cutters, [Class 30].
 ruffling-tools, hand-operated, for use in sewing-machines. *See* Sewing-machines, (ruffling-attachments).
 scissors. *See* Scissors &c., [Class 30].
 seams. *See* stitches &c. *below*.
 separating and indenting stitches. *See* Boots &c., Apparatus for making &c., (finishing), [Class 17 (i)].
 sewing-machines. *See* Sewing-machines.
 Smyrna needlework. *See* embroidery *above*.
 spangles, attaching. *See* embroidery *above*.
 special threads and wires, use of in sewing. 159,867.
 stilettoes and awls. *See* Stilettoes &c.

Sewing &c.—cont.

stitches, and stitched seams of general and unspecified application. 157,767. 168,239. 170,761. 170,763. 172,261. 172,531. 183,553. 186,744. 190,978. 194,408. 200,536. 206,727. 208,868. 211,641. 215,359. 218,545. 224,031. 229,097. 234,290. 234,800. 235,866. 239,464.
Seams of interest only in their application to wearing-apparel, boots, and other specific articles are indexed only under corresponding headings for such articles.
 strengthening stitched seams by separate bars, rivets, staples, and like fasteners. *See* strengthening stitched seams &c. *below*.
 strengthening stitched seams by separate bars, rivets, staples, and like fasteners. [No cases.]
 tacking. *See* stitches &c. *above*.
 teaching-appliances. *See* Educational appliances, [Class 146 (ii)].
 thimbles and finger shields. *See* Thimbles &c.
 thread-cutters. *See* String &c. cutters, [Class 30].
 trimming or cutting machines for sewn and embroidered articles. *See* Cutting and severing machines for paper &c., [Class 31 (i)].
 tufting. *See* misc. *above*; Sewing-needles &c.; stitches &c. *above*.
 turning sewn articles inside out, (other than in making turn-shoes). *See* Turning inside out &c.
 work-boxes. *See* Work-boxes &c., [Class 133].
 work-holders, (other than for darning). 157,533. 173,509. 174,419. 176,179. 187,856. 220,761. 230,094. 238,243.
 milliners' work-holders. *See* Hats &c., [Class 63].
 work-holders for darning. *See* Darning.
 yarns and threads. *See* Yarns &c., [Class 120 (iii)].

Sewing-machines.

Excepting machines for Darning; Stapling and discontinuous wire-stitching, [Class 89 (iii)].
 alarms, applications of. [No cases.]
 awls. *See* perforating-devices *below*.
 bearings. *See* Bearings &c., [Class 12 (i)].
 benches. *See* stands *below*.
 binding edges. *See* folding-devices *below*.
 blind-stitching otherwise than by work holding and bending attachments. *See* kinds &c. (machines with work-benders) *below*.
 blind-stitching, overedge-stitching, and seaming edge-to-edge, work holding and bending attachments for. 201,230. 211,596.
 blowing or removing cuttings. *See* thread-cutters &c.; trimming &c. *below*.
 bobbin cases for lock-stitching mechanism. *See* stitch-forming devices *below*.
 bobbin holders. *See* thread spool &c. holders *below*.
 boxes for enclosing attachments. *See* Boxes &c., [Class 18].

Sewing-machines—cont.

- braiding-applying attachments. *See* cords &c., attaching *below*.
- buttonholes and eyelet-holes, attachments for sewing. [No cases.]
- button-sewing, work-holding attachments for. *See* kinds &c. (special goods, machines &c. for: buttons &c., attaching) *below*.
- cabinets for. *See* Cabinets &c., [Class 52 (i)].
- chain-stitching. *See* stitch-forming devices *below*.
- channelling, (including channel opening and closing devices). 210,606. 217,263.
- clamps, table. *See* frames &c. *below*.
- cleaning, pads for. *See* Pads, revivers, &c., [Class 19].
- coin and check freeing mechanism. *See* Coin and check freed apparatus, [Class 27].
- cords, braids, ribbons, and surface threads, guides for use in attaching, (other than in embroidery machines)—
- binding edges. *See* folding-devices *below*.
- concatenating attached cords, braids, ribbons, and surface threads with stitches. 161,874. 174,141. 195,587. 199,730. 205,281. 206,727. 213,226. 214,752. 217,533. 222,691. 236,381.
- cording-guides in buttonhole sewing-machines. *See* kinds &c. (buttonhole &c.) *below*.
- cording-guides in folding-devices. *See* folding-devices *below*.
- other than concatenating attached cords, braids, ribbons, and surface threads with stitches. 200,713. 221,115. 221,461. 222,682. 222,684.
- welt guides in boot-sole sewing-machines, (welting and turnshoe). *See* work holding &c. (work supports &c.) *below*.
- counting-mechanism, applications of. 217,030.
- counting-mechanism, construction of. *See* Counting-apparatus &c., [Class 106 (i)].
- covers and cases. *See* Cabinets &c., [Class 52 (i)].
- creasing or marking attachments. *See* marking-attachments *below*.
- cutting. *See* trimming &c. *below*.
- double-loop stitching. *See* stitch-forming devices *below*.
- dress guards. *See* stands *below*.
- driving—
- Constructions of gearing of interest apart from the actuation of particular machines are indexed under the various headings for gearing.*
- belts and bands for. *See* Gearing, Belt &c., [Class 80 (i)].
- clutches. *See* starting &c. gear *below*.
- countershaft and other gearing for driving two or more machines and exterior of those machines. *See* Countershaft and other gearing &c., [Class 80 (ii)].

Sewing-machines—cont.

- driving—cont.
- electric motor control systems. *See* Electric motor control systems, [Class 38 (iii)].
- flywheels. *See* Flywheels, [Class 122 (i)].
- gearing, hand and treadle, construction of. *See* Cycle &c. driving-mechanism, [Class 136 (ii)].
- mats for treadles. *See* Carpets &c., [Class 142 (iv)].
- motors. *See* separate headings, such as Dynamo-electric machines, [Class 35]; Internal-combustion engines, Arrangement &c. of, [Class 7 (ii)].
- other than starting and stopping—
- driving-gear, (other than for starting and stopping) not covered by other Key subdivisions. [No cases.]
- driving-wheel clutches operable only when wheels are stationary. [No cases.]
- grouped machines, arrangements of driving-gear for. *See* grouped machines *below*.
- hand gearing, applications of. 189,649.
- motors other than spring and gravity, applications of and devices for starting and stopping. 160,255. 181,639. 182,033. 182,057. 185,024. 185,627. 185,710. 186,130. 186,565. 186,789. 186,798. 187,193. 187,785. 206,816. 221,729. 223,420. 225,762. 229,900. 230,652. 231,168. 235,399. 242,150.
- reverse motion, preventing. [No cases.]
- shafts and shaft gearing, applications of. 163,967. 230,352. 232,923.
- belt, friction, and toothed gearing, arrangements for stopping by disengaging. *See* starting &c. gear *below*.
- belt gearing. *See* treadle gearing &c. *below*.
- gearing operative in one direction only. *See* reverse motion, preventing *above*.
- upper and lower shafts, connecting. *See* upper &c. shafts &c. *below*.
- variable-speed gears. *See* variable-speed gears, &c. *below*.
- spring and gravity motors, applications of. [No cases.]
- treadle gearing and belt gearing, other than in hand-wheel drives, applications of. 228,886. 230,652.
- variable-speed gears, applications of. 163,456. 163,967. 180,151. 189,204. 230,652.
- varying speed by control of prime movers. *See* motors &c.; spring and gravity &c. *above*.
- varying speed by slip of belts or friction gearing. *See* starting &c. gear *below*.
- reverse motion, preventing. *See* other than starting &c. *above*.
- speed-regulating. *See* other than starting &c. *above*.

Sewing-machines—cont.

driving—cont.

starting and stopping gear, (including operative connections with presser-feet and other machine parts). 157,569. 161,974.

162,505. 163,132. 163,456. 163,967.

164,858. 168,399. 169,028. 170,762.

173,679. 179,279. 185,711. 190,547.

190,636. 190,663. 192,904. 196,388.

197,614. 201,997. 202,246. 203,359.

206,374. 206,710. 208,004. 208,281.

209,696. 215,772. 217,506. 218,207.

219,582. 222,175. 222,756. 223,801.

223,853. 223,917. 225,431. 225,748.

226,133. 226,134. 228,429. 228,489.

228,504. 229,262. 230,352. 231,086.

231,977. 232,923. 234,861. 236,051.

241,235.

alarms to warn operators that machines should be stopped. *See* alarms, applications of *above*.brakes, construction of. *See* Brakes &c., [Class 103 (i)].clutches, construction of. *See* Clutches &c., [Class 80 (ii)].operative connections with feed and button hole-cutting mechanisms in button-hole sewing-machines. *See* kinds &c. (buttonhole &c.) *below*.prime movers, in applications of. *See* other than starting &c. *above*.eyelet holes, attachments for sewing. *See* buttonholes &c., attachments for sewing *above*.eyelet-hole sewing-machines. *See* kinds &c. *below*.fabrics, making by stitching together fibrous materials and threads. *See* kinds &c. (special goods, machines &c. for) *below*.feeding sheets and flat articles otherwise than during stitching. *See* Feeding sheets &c., [Class 100 (i)].feeding webs otherwise than during stitching. *See* Feeding webs &c., [Class 100 (i)].

feeding work during stitching, (other than feeds peculiar to well-defined kinds or types of machines)—

by awls. 210,606. 228,489. 228,504. 239,279.

by channel guides in boot-sole sewing-machines (outsole-sewing and fair-stitching). *See* by presser-feet &c. *below*.

by clamps, spiked plates, and other devices to which work is fixed. 160,549. 164,256. 173,708. 236,051.

devices constrained to move along certain paths to guide work which is otherwise fed. *See* work holding &c. (work supports &c.: other than boot-sole: work guides) *below*.devices merely supporting work which is otherwise fed. *See* work holding &c. (work supports &c.: other than boot-sole: work supports) *below*.in buttonhole and eyelet-hole sewing-machines. *See* kinds &c. *below*.in embroidery machines. *See* kinds &c. *below*.in linking-machines. *See* kinds &c. (special goods, machines &c. for: knitted fabrics, sewing) *below*.**Sewing-machines—cont.**

feeding work during stitching—cont.

by clamps, &c.—cont.

in machines for attaching buttons, hooks, and like small goods. *See* kinds &c. (special goods, machines &c. for) *below*.spiked rotary devices from which work is stripped as it leaves stitching-point. *See* by wheels &c. *below*.

by co-operating-jaws. 183,256.

by dogs, (other than by presser-feet and other devices engaging upper surface of work)—

dogs co-operating with other feeds. 199,740. 218,936.

dogs or feeding - surfaces. 159,577.

159,701. 160,920. 173,395. 197,622.

197,892. 199,740.

feed-bar mechanisms, (other than for special feeding operations). 157,921.

159,701. 160,920. 167,802. 171,861.

188,736. 189,649. 189,695. 190,763.

199,740. 199,861. 204,245. 206,039.

207,397. 211,815. 212,614. 212,615.

217,821. 218,217. 219,587. 219,588.

219,589. 221,678. 222,691. 224,064.

231,627. 232,896. 232,897. 233,812.

234,746. 240,388. 240,543.

feeding operations, special—

circular. [No cases.]

continuously-reversing and intermittent for producing special stitches. [No cases.]

hem-stitch feeds. *See* kinds &c. (hem-stitching machines) *below*.

duplex, (stretching and crowding).

167,057. 207,397. 212,614. 216,904.

219,587. 219,588. 219,589. 224,064.

miscellaneous—

periodically varying and reversing. 205,800. 221,678.

multiple feeds in multiple-needle machines. *See* kinds &c. (multiple-needle machines) *below*.universal and angular. [No cases.] in Cornely and like machines. *See* kinds &c. (universal-feed &c.) *below*.

zigzag. [No cases.]

feed, reversing and regulating—

in feed-bar mechanism. 199,740. 211,815.

217,821. 219,587. 219,588. 219,589.

222,691. 224,064.

in feed - shaft driving - mechanism.

159,701. 160,920. 177,390. 179,092.

189,695. 206,039. 231,627. 240,388.

in boot-sole sewing-machines, (welting and turn-shoe). *See* work holding &c. (work supports &c.) *below*.

by moving machines. 160,549.

in carpet-sewing machines. *See* kinds &c. (special goods, machines &c. for) *below*.

by needles. 167,023. 218,936. 228,208. 229,218.

Sewing-machines—cont.feeding work during stitching—*cont.*

by presser-feet and other devices engaging upper surface of work. 160,948. 163,456. 163,967. 167,023. 173,395. 199,740. 201,997. 202,245. 204,595. 206,463. 208,968. 210,606. 215,884. 217,263. 218,936. 222,175. 228,208.

hem-stitch feeds. *See* kinds &c. (hem-stitching machines) *below*.

in boot-sole sewing-machines, (welting and turn-shoe). *See* work holding &c. (work supports &c.) *below*.

universal feeds in Cornely and like machines. *See* kinds &c. (universal-feed &c.) *below*.

by welt or channel guide in boot-sole sewing-machines, (welting and turn-shoe). *See* work holding &c. (work supports &c.) *below*.

by wheels, chains, and other rotary devices—chains and other flexible members, by. [No cases.]

clamps operated by chains, by. *See* by clamps &c. *above*.

in overhead sewing-machines (scale-pan type). *See* kinds &c. (overhead sewing-machines &c.) *below*.

periphery of wheels, rollers, and other rotary members having frictional contact only with work, by. 157,569. 167,023. 180,151. 180,470. 180,832. 194,696. 199,740. 203,676. 229,218. 243,237.

feeding by roller systems. *See* feeding long lengths &c.; misc.; *below*.

sides of revolving discs, by. [No cases.]

feeding book signatures and pamphlets. *See* kinds &c. (special goods, machines &c. for) *below*.

feeding long lengths of fabric. 160,549. 222,756. 230,352.

miscellaneous—

feeding-devices with laterally-moving edge-guides. 217,263.

sack conveyers in machines for closing mouths of filled sacks. *See* kinds &c. (special goods, machines &c. for: sacks, sewing) *below*.

finger guards. 187,487. 230,633.

folding-devices. 160,275. 160,549. 172,531. 180,832. 199,861. 222,322. 230,352.

ruffling - attachments. *See* ruffling - attachments *below*.

turning sewn articles inside out. *See* Turning inside out &c.

folding or crimping work in running-stitch machines. *See* kinds &c. (running-stitch machines) *below*.

frames and table clamps. 160,358. 160,948. 161,076. 181,639. 185,070. 186,798. 202,898. 217,506. 225,762. 228,208. 229,218. 232,479. 235,060. 240,766. 241,433.

elastic and wear-resisting tips and pads. *See* Ferrules and tips, Elastic &c., [Class 134].

frame constructions essential to special machines. *See* kinds &c. *below*.

fringing. *See* kinds &c. (fringing-machines) *below*.

Sewing-machines—cont.

gathering-attachments. *See* ruffling-attachments *below*.

governing thread. *See* threads, controlling &c. *below*.

grouped machines. 185,152. 222,756. 231,977. bench constructions of interest apart from sewing-machines. *See* Benches, Work, &c., [Class 61 (ii)].

guiding materials. *See* work holding &c. *below*.

heating parts of machines for handling waxed thread. *See* threads, waxing &c. *below*.

hemming-guides. *See* folding-devices *above*; work holding &c. (presser-feet) *below*.

hem-stitching. *See* kinds &c. *below*.

hooks and eyes, attaching. *See* kinds &c. (special goods, machines &c. for: buttons &c.) *below*.

horns. *See* work holding &c. *below*.

illuminating - apparatus. 155,867. 183,738. 186,798. 187,193. 187,785. 217,509. 226,756. 226,758. 230,537. 232,479. 232,559.

lamps, construction of. *See* Lamps for lighting in which the illuminant is enclosed &c., [Class 75 (iv)]; Lamps without lanterns &c., [Class 75 (iv)].

jacquard cards, connecting. *See* kinds &c. (special goods, machines &c. for) *below*.

kinds or types—

blind-stitching machines. *See* machines with work benders *below*.

boot-sole stitching and lasting or stitching and assembling without lasting. 163,485. 166,046. 168,403. 175,433. 176,496. 189,331. 215,772. 241,235.

lasting-apparatus. *See* Boots &c., Apparatus for making &c., [Class 17 (i)].

buttonhole and eyelet-hole sewing-machines, (including automatic machines for making buttonhole barring and like groups of stitches). 161,076. 163,221. 164,858. 165,386. 173,411. 173,678. 174,809. 174,921. 175,944. 176,108. 176,296. 176,299. 176,993. 181,555. 181,556. 181,897. 182,209. 182,958. 183,256. 183,873. 184,134. 184,135. 185,711. 197,463. 197,629. 198,628. 201,298. 203,359. 209,087. 210,060. 221,952. 223,124. 223,801. 224,469. 224,845. 225,431. 225,748. 226,133. 226,134. 226,792. 231,081. 233,260. 235,774. 236,844. 239,126. 244,364.

embroidery machines—

jacquard cards, punching. *See* Loom pattern cards &c., [Class 142 (i)].

other than Swiss or Heilmann type. 177,317. 210,196. 221,678.

sewing-apparatus universally mounted for hand control. *See* (kinds &c.) misc. *below*.

shuttles, construction of. *See* stitch-forming devices *below*.

Swiss or Heilmann type (with double-pointed needle). 157,394. 157,410. 157,411. 173,775. 173,776. 183,026. 183,334. 190,166.

work frames, construction and operation of. 172,598. 197,532. 226,122. 226,451. 232,179. 239,850.

Sewing-machines—cont.kinds or types—*cont.*

- fringing-machines. 156,362. 222,682.
- hem-stitching machines. 180,507. 192,833. 218,171. 218,217.
- honeycombing-machines. *See* machines with work benders *below*.
- linking-machines. *See* special goods, machines &c. for (knitted fabrics, sewing) *below*.
- machines with work benders—
 - continuously bending work, (including ridge wheels)—
 - feed parallel to bend. 180,298. 211,596. 242,207.
 - feed transverse to bend. [No cases.]
 - hat-sewing machines, (attaching sweat bands). *See* special goods, machines &c. for *below*.
 - intermittently bending work, (including wheels between teeth on which work is bent)—
 - blind and like stitching for. 194,436. 197,676. 211,052.
 - pleating, honeycombing, fringing, and other special operations, for. [No cases.]
 - with lateral pushers. [No cases.]
 - work holding and bending, attachments for. *See* blind-stitching &c., work holding &c. attachments for *above*.
- miscellaneous. [No cases.]
- multiple-needle machines, (other than book signature and pamphlet sewing, embroidery, hem-stitching, jacquard-card, connecting, quilting, and universal-feed machines)—
 - making stitches by means of two or more needles having like functions). 163,627. 172,531. 185,697. 186,475. 188,252. 189,680. 199,740. 206,727. 211,052. 215,359. 222,684. 222,691. 226,484. 231,193. 231,322. 232,609. 234,404. 235,866.
- sewing several separate seams simultaneously. 168,205. 171,616. 178,743. 198,972. 198,973. 198,974. 199,861. 204,245. 212,300. 215,688. 228,085. 240,776.
- overhead-sewing machines, revolving-needle type. *See* running-stitch machines *below*.
- overhead-sewing machines, scale-pan type, (other than linking-machines and sack-sewing machines closing mouths of filled sacks). 156,362. 160,294. 180,590. 190,915. 195,164. 197,893. 201,096. 209,310. 213,503. 215,660. 222,322. 226,636. 230,999.
- portable machines. 160,358. 167,028. 189,649.
- quilting-machines. 215,359.
- ruffling-machines. [No cases.]
- running-stitch machines, (other than embroidery machines)—
 - not covered by other Key subdivisions. [No cases.]
 - pleating or corrugating work. 168,656. 181,524. 187,178.
 - revolving-needle. 213,133.
 - to-and-fro or double-pointed needle. [No cases.]

Sewing-machines—cont.kinds or types—*cont.*

- sewing-apparatus without work-supports. *See* Sewing-needles &c.
- special goods, machines designed for—
 - book signatures and pamphlets, sewing. 162,806. 171,364. 172,684. 173,679. 176,460. 190,773. 237,193. 243,303.
 - boot soles, making by stitching together coiled plaits. 178,132.
 - buttons, hooks, and like small goods having prepared holes through which sewing-thread is passed, attaching—
 - articles other than flat and shanked buttons. [No cases.]
 - rings and the like, attaching by over-sewing. *See* buttonhole &c. *above*.
 - delivering buttons, hooks, and other small goods from magazines. *See* Buttons, eyelets, &c., Apparatus for setting &c., [Class 43].
 - flat buttons. 162,505. 175,386. 187,175. 206,710. 217,506. 218,207. 242,232.
 - shanked buttons. [No cases.]
- carpets, sewing, (travelling machines). [No cases.]
- fabrics, making by stitching together threads and fibrous materials. [No cases.]
- net-making machines. *See* Net-making machines &c., [Class 74 (i)].
- hats, sewing—
 - brims, binding. [No cases.]
 - sweat bands, attaching. 176,904. 181,693. 182,390. 234,404.
- incandescent-lamp mantles, sewing. [No cases.]
- jacquard cards, connecting. [No cases.]
- knitted fabrics, sewing, (linking-machines). 208,096. 208,998. 209,108. 212,064. 234,115.
- miscellaneous—
 - covered balls, stitching. 211,052.
 - insertions, attaching. 199,861.
 - labels, attaching. 190,048. 192,904. 230,259.
 - leather and like bags and cases, stitching. 222,213.
 - padded edges of mattresses and the like, sewing. 163,225. 187,816. 189,278. 190,821. 190,822.
 - stitching feathers, tufts, and the like to fabrics. 214,748.
 - suit cases and the like, stitching. 174,419. 198,430.
 - threading short lengths of tape into buttons. 191,182.
 - rings, attaching by oversewing. *See* buttonhole &c. *above*.
 - sacks, sewing. 157,612. 171,812. 180,212. 208,004. 208,868. 209,696. 210,378. 213,133. 213,853. 219,843. 228,429. 228,619.
 - straw-plait, sewing, (other than boot soles, making by stitching together coiled plaits). 231,412. 236,381. 243,585.
 - straw, reeds, grass, paper, and other packing-materials, sewing, (other than straw-plait, sewing). [No cases.]

Sewing-machines—cont.

kinds or types—*cont.*

special goods, machines designed for—*cont.*

strings of spangles, beads, and like articles, attaching. *See* cords &c., attaching *above*.

upholstery, buttoning. [No cases.]

wrappers, straw, paper, and like, stitching. *See* straw &c., sewing *above*.

toy machines. *See* portable machines *above*.

tufting-machines. 167,640. 171,389. 177,535. 205,242. 231,273. 242,376.

hand-carried devices. *See* Sewing-needles &c.

universal-feed machines, (Cornely and like types). 174,141. 195,587. 205,281. 213,226. 214,752. 217,533. 224,527.

knife sharpening, grinding, and polishing attachments. *See* needle &c. attachments *below*.

knitted fabrics, sewing, (in linking-machines). *See* kinds &c. (special goods, machines &c. for) *above*.

knitting-attachments. *See* Knitting machines &c., [Class 74 (ii)].

knotted stitches, making. *See* stitch-forming devices *below*.

lasting-tack extractors. [No cases.]

lock-stitching. *See* stitch-forming devices *below*.

loopers. *See* stitch-forming devices *below*.

loop-stitching. *See* stitch-forming devices *below*.

lubricants, preventing transference of to sewing-threads and work. *See* subheadings for details *modified*.

lubricating bearing-surfaces. *See* Lubricating passages &c., [Class 12 (ii)].

lubricating-cans. *See* Lubricating-cans, [Class 12 (ii)].

lubricating needles. [No cases.]

lubricating threads. *See* threads, waxing &c. *below*.

making and treating parts by operations of interest apart from product. *See* separate headings, such as Boring and drilling metal &c., [Class 83 (iii)].

marking-attachments, (other than for separating and indenting stitches). 233,714.

miscellaneous—

cams and cam-bowls, construction of. 182,808. flexible and resilient members in mechanisms. 191,182.

multiple-needle machines. *See* kinds &c. (multiple-needle machines) *above*.

needle-bars and needle-bar slides. *See* stitch-forming devices (needles, driving) *below*.

needle-bars and needle-bar slides specially arranged for multiple-needle machines. *See* kinds &c. (multiple-needle machines) *above*.

needle-driving mechanism, disconnecting and controlling, (otherwise than in stitch-forming). 160,948. 228,085. 228,489. 228,504. 240,776.

Sewing-machines—cont.

needle guides and shields. 163,225. 175,433. 179,504. 198,972. 198,973. 198,974. 215,884. 217,263. 218,217. 222,684. 222,691. 222,721. 228,208.

constructions of loop-takers for preventing deflection of needles. *See* stitch-forming devices *below*.

in chain-stitching, double-loop stitching, and simple lock-stitching devices comprising barbed needles. *See* stitch-forming devices *below*.

in machines with work benders. *See* kinds &c. *above*.

needle-holders. 187,487.

for two or more needles. *See* kinds &c. (multiple-needle machines) *above*.

vibrating laterally. *See* needles, vibrating laterally *below*.

needle, knife, and like sharpening, grinding, and polishing attachments. [No cases.]

needles. *See* Sewing-needles &c.

needles, driving in stitch-forming. *See* stitch-forming devices *below*.

needles, hook, cast-off devices for. *See* stitch-forming devices *below*.

needles, hook, threading-devices for. *See* stitch-forming devices *below*.

needles, setting, (other than needle-holders). [No cases.]

needle-threaders used for setting needles. *See* Needle-threaders.

needles, vibrating laterally, (including means for vibrating needles and loop-takers laterally in unison). 157,569. 161,076. 163,225. 164,858. 171,861. 176,657. 179,278. 179,504. 180,470. 180,507. 183,256. 199,861. 203,676. 205,800. 212,616. 218,217. 218,936. 221,678. 221,776. 235,060.

feeding work. *See* feeding work during stitching *above*.

needle-threaders for eyed needles. *See* Needle-threaders.

overedge stitching. *See* stitch-forming devices *below*.

perforating-devices, (other than in book signature and pamphlet sewing, embroidery machines, and hem-stitching machines). 160,887. 174,419. 200,751. 210,606.

pleating-devices. *See* folding-devices *above*.

portable machines. *See* kinds &c. *above*.

presser-feet. *See* work holding &c. *below*.

presser-wheels. *See* work holding &c. *below*.

quilting-attachments. *See* work holding &c. (work supports &c.) *below*.

quilting-machines. *See* kinds &c. *above*.

reverse motion, preventing. *See* driving *above*.

revolving-needle machines. *See* kinds &c. (running-stitch machines) *above*.

ruffling-attachments. [No cases.]

seaming edge-to-edge. *See* blind-stitching &c., work holding &c. attachments for; kinds &c. (machines with work benders); *above*; stitch-forming devices; work holding &c.; *below*.

spangles, attaching. *See* cords &c., attaching *above*.

spools, bobbins, cops, and balls, holders and winders for. *See* thread spool &c. *below*.

Sewing-machines—cont.

- stands, (including dress guards). 167,410.
168,231. 185,024. 185,627. 186,565. 186,798.
190,636.
- bench constructions of interest apart from sewing-machines. *See* Benches, Work, &c., [Class 61 (ii)].
- castors for. *See* Castors, Furniture &c., [Class 52 (i)].
- converting into cabinets and cases. *See* Cabinets &c., [Class 52 (i)].
- converting into tables. *See* Tables, (Furniture), [Class 52 (iii)].
- elastic and wear-resisting tips and pads. *See* Ferrules and tips, Elastic &c., [Class 134].
- extension leaves. *See* Tables, (Furniture), [Class 52 (iii)].
- for grouped machines. *See* grouped machines *above*.
- moving bodily, 'on-and-off' castors and other means to facilitate. *See* Furniture, [Class 52 (i)].
- stays for hinged flaps. *See* Hinged &c. articles, Stays for, [Class 65 (i)].
- table-top fittings of interest apart from sewing-machines. *See* Tables, (Furniture), [Class 52 (iii)].
- starting and stopping. *See* driving *above*.
- stitches, separating and indenting, attachments for. [No cases.]
- stitch-forming devices—
Excepting Knot-tying devices; needles, vibrating laterally *above*; Sewing-needles, bodkins, and other hand-sewing tools; thread-tensioning devices other than devices for varying thread tension intermittently *below*; and devices in machines of the following kinds or types:—embroidery machines; fringing-machines; hem-stitching machines; machines with work benders; multiple-needle machines (making stitches by means of two or more needles having like functions); overhead-stitching machines, scale-pan type; running-stitch machines; special goods, machines &c. for (book signatures and pamphlets, sewing); tufting-machines.
- chain-stitching and double-loop-stitching by devices comprising barbed needles—
whirls in rotary horns. *See* work holding &c. (work supports &c.: boot-sole: rotary horns &c.) *below*.
- without separate stitch-setting devices. 160,948. 163,456. 163,967. 200,180. 201,997. 228,489. 228,504.
- with position of preceding stitch variable in relation to stitch-forming devices. *See* loop-stitching other than &c. *below*.
- with separate stitch-setting devices. 170,762.
- chain-stitching and double-loop-stitching by devices comprising eyed needles and loop-takers having one loop-taking point—
governing threads in passing to needle eyes. 161,487. 171,616. 183,586. 185,697. 230,352. 232,479.

Sewing-machines—cont.

- stitch-forming devices—*cont.*
- chain-stitching &c. by devices comprising eyed needles &c.—*cont.*
- needles, driving—
curved needles. [No cases.]
straight needles. 172,531. 204,595. 230,352.
- other than governing threads in passing to needle eyes and needles, driving—
other than rotary loopers. 188,252. 189,680. 204,245. 204,251. 206,726. 207,397. 212,300. 213,509. 215,688. 216,778. 217,156. 217,821. 220,882. 222,684. 231,322. 237,426.
- rotary loopers. 215,288. 225,467. 230,352.
- with position of preceding stitch variable in relation to stitch-forming devices. *See* loop-stitching other than &c. *below*.
- devices comprising loop-takers having two or more loop-taking points. [No cases.]
- formation of loose stitches, devices for causing. *See* misc. *above*.
- free-loop-stitching, (other than tufting). [No cases.]
- lock-stitching other than simple and single-thread—
governing threads in passing to needle eyes. [No cases.]
- needles, driving—
curved needles. [No cases.]
straight needles. [No cases.]
- other than governing threads in passing to needle eyes and needles, driving—
devices comprising loop-takers other than shuttles. 199,861.
devices comprising shuttles. 163,380. 203,359.
- lock-stitching, simple, by devices comprising barbed needles—
whirls in rotary horns. *See* work holding &c. (work supports &c.: boot-sole: rotary horns &c.) *below*.
- with loop-takers other than shuttles and rotary and oscillating hooks. [No cases.]
- with position of preceding stitch variable in relation to stitch-forming devices. *See* lock-stitching other than &c. *above*.
- with rotary and oscillating hooks surrounding spool-cases so as to support them. 221,130. 229,538.
- with shuttles. 160,948. 190,547. 202,223. 210,360. 210,605. 210,606. 222,175.
- lock-stitching, simple, by devices comprising eyed needles and loop-takers having one loop-taking point—
governing threads in passing to needle eyes. 162,662. 164,400. 175,932. 180,470. 182,082. 189,649. 211,518. 228,208. 233,812. 234,261.
- needles, driving—
curved needles. [No cases.]
straight needles. 164,400. 189,649. 211,518. 222,087. 228,208.

Sewing-machines—cont.stitch-forming devices—*cont.*

lock-stitching, simple, by devices comprising eyed needles &c.—*cont.*

other than governing threads in passing to needle eyes and needles, driving—

with loop-takers other than shuttles and rotary and oscillating hooks surrounding spool-cases so as to support them—

other than stationary spool-case and oscillating needle. 224,162. 232,896. 232,897. 233,636. 233,812. 234,746.

stationary spool-case and oscillating needle. [No cases.]

with position of preceding stitch variable in relation to stitch-forming devices. *See* lock-stitching other than &c. above.

with rotary and oscillating hooks surrounding spool-cases so as to support them—

oscillating hooks. 164,390. 164,391.

rotary hooks. 165,527. 165,678. 170,483. 171,861. 177,636. 178,743. 182,547. 182,581. 182,747. 185,337. 188,736. 189,694. 199,063. 223,162. 229,218. 235,060. 236,843. 240,388.

with shuttles—

raceless shuttles, shuttles wholly supported by carriers or drivers, and shuttles for which the thread loops are completely spread by other devices—

with loop spreaders. [No cases.]

without loop spreaders. 168,633.

shuttles for which thread loops are completely spread by other devices. *See* raceless shuttles &c. above.

shuttles partially supported by races or race plates. 163,065. 175,498. 189,649. 220,752.

shuttles wholly supported by circular races of relatively small radius. 156,824. 156,832. 167,028. 167,693. 185,005. 228,208.

shuttles wholly supported by rectilinear races and circular races of relatively large radius. [No cases.]

lock-stitching, single-thread. [No cases.]

loop-stitching other than chain-stitching, double-loop stitching, and free-loop stitching—

devices comprising loop-takers having two or more loop-taking points. *See* devices comprising loop-takers having two &c. points above.

governing threads in passing to needle eyes. 160,295. 160,920. 164,858. 179,278. 185,711.

needles, driving—

curved needles. 219,587. 219,588. 219,589.

straight needles. 160,920. 181,897. 185,711. 212,616. 222,721. 241,433.

Sewing-machines—cont.stitch-forming devices—*cont.*loop-stitching &c.—*cont.*

other than governing threads in passing to needle eyes and needles, driving—

one eyed-needle throwing two or more loops for each stitch. 165,813. 179,278. 194,537. 242,788.

one looper and one eyed-needle throwing one loop for each stitch. 185,690. 212,616. 225,467.

other than one eyed-needle throwing two or more loops for each stitch, and one looper and one eyed-needle throwing one loop for each stitch. 160,920. 172,168. 181,556. 182,958. 185,711. 194,408. 200,536. 219,587. 219,588. 219,589. 222,721. 235,866. 241,433.

mechanism for automatically extracting and inserting shuttles and thread spools. 206,085.

stitches completed by buttons and like articles being attached. *See* kinds &c. (special goods, machines &c. for: buttons &c., attaching) above.

stitching by locking thread loops with free loops of thread, pins, tongues of leather, and their equivalents. 215,772.

stitch-regulating. *See* feeding work &c. above. straw goods, sewing. *See* kinds &c. (special goods, machines &c. for) above.

table clamps. *See* frames &c. above.

take-up devices. *See* stitch-forming devices above.

thread-cutters and thread-end holders. 162,505. 162,663. 163,225. 163,627. 167,673. 173,775. 174,440. 177,738. 181,556. 183,586. 185,690. 203,359. 206,710. 215,772. 217,506. 223,124. 223,801. 225,371. 225,748. 226,133. 241,235.

threads, controlling in stitch-forming. *See* stitch-forming devices above; thread-tensioning devices below.

threads, controlling otherwise than in stitch-forming, (other than thread-cutters and thread-end holders). 162,662. 163,065. 164,858. 183,236. 185,070. 206,710. 211,855. 215,772. 216,891. 223,124. 224,845. 225,748. 226,133. 232,479.

stopping-gear. *See* driving above.

thread spool, bobbin, and cop holders. 155,867. 178,315.

thread spool, bobbin, and cop winding apparatus, applications of. 163,065. 165,220. 189,649. 206,816. 211,410. 235,060.

mechanism for automatically extracting and inserting thread spools. *See* stitch-forming devices above.

thread spool, bobbin, and cop winding apparatus, construction of. *See* Winding bobbins &c., [Class 120 (ii)].

thread spools, bobbins, and cops for loop-takers of stitch-forming devices. *See* stitch-forming devices above.

thread spools, bobbins, and cops, other than for loop-takers of stitch-forming devices. *See* Bobbins &c., [Class 120 (iii)].

threads, waxing and lubricating. 158,763. 175,096. 200,043. 201,997. 222,175. 228,506.

Sewing-machines—cont.

- thread-tension indicators. *See* Dynamometers, [Class 106 (ii)].
- thread-tensioning devices. 160,358. 185,062. 201,997. 212,064. 215,688. 223,124. 228,208. 232,479.
- devices acting upon thread bobbins. *See* thread spool &c. holders *above*.
- intermittent control of. *See* stitch-forming devices; threads, controlling otherwise &c.; *above*.
- throat plates. *See* work holding &c. *below*.
- treadle driving. *See* driving *above*.
- trimming or cutting. 156,054. 159,051. 159,577. 170,409. 177,369. 199,861. 203,676. 204,595. 206,727. 209,310. 213,503. 218,936. 219,587. 219,588. 219,589. 221,115. 221,461. 227,063. 229,218. 244,513.
- buttonholes, cutting. *See* buttonholes &c.; kinds &c. (buttonhole &c.); *above*.
- in linking-machines. *See* kinds &c. (special goods, machines &c. for: knitted fabrics, sewing) *above*.
- tongues for locking thread loops, cutting. *See* stitch-forming devices (stitching by locking thread loops &c.) *above*.
- welt-end, cutting in boot-sole sewing-machines, (welting and turn-shoe). *See* work holding &c. (work supports &c.: boot-sole: welting &c.) *below*.
- tuck - creasers. *See* marking - attachments *above*.
- tufting. *See* kinds &c. *above*.
- two-reel machines. *See* stitch-forming devices (lock-stitching &c.) *above*.
- upholstery, buttoning. *See* kinds &c. (special goods, machines &c. for) *above*.
- upper and lower shafts, connecting. 162,211. 179,092. 188,736. 189,694. 197,054. 200,694. 218,217.
- by hand driving-gear. *See* driving *above*.
- waxing threads. *See* threads, waxing &c. *above*.
- welt guides. *See* work holding &c. *below*.
- whirls for threading hooked needles. *See* stitch-forming devices *above*.
- work holding and feeding devices. *See* feeding work during stitching *above*.
- work holding and guiding devices, (other than those specially modified for use with particular kinds or types of machines)—
- presser-bars—
- duplex. 209,407.
- lifting, automatic. *See* periodic control, with *below*.
- lifting, non-automatic. *See* lifting other than periodic, devices for *below*.
- lifting other than periodic, devices for. 157,569. 160,920. 171,861. 185,070. 199,740. 209,407. 222,691. 235,060.
- locking. *See* periodic control, with *below*.
- operative connections with starting and stopping gear. *See* driving *above*.
- operative connections with thread control. *See* threads, controlling &c. *above*.

Sewing-machines—cont.

work holding and guiding devices—cont.

presser-bars—cont.

- other than duplex, with periodic control, and devices for lifting other than periodic). 161,487. 171,861. 173,395. 219,587. 219,588. 219,589. 225,497. 228,489. 228,504. 231,412. 232,479. 235,060.
- periodic control, with, (other than duplex bars moving alternately)—
- other than pressers with positive work-engaging movements and pressers with locking-devices. 189,437. 198,296. 201,997. 202,223. 202,245. 206,463. 206,710. 209,328. 210,605. 210,606. 228,489. 228,504.
- pressers with positive work-engaging movements and pressers with locking-devices. 160,948. 163,485. 163,967. 167,028. 215,363. 228,208.
- rigid presser-bars co-operating with spring-pressed work-supports. *See* work supports &c. *below*.
- presser-feet. 156,054. 159,577. 161,487. 184,044. 197,622. 199,740. 199,861. 200,180. 200,751. 201,230. 203,594. 207,386. 209,328. 209,407. 210,605. 210,606. 214,748. 217,263. 218,936. 235,060. 241,433. 243,585.
- attached to needles or needle-bars. *See* presser-bars (periodic control, with) *above*.
- guides and gauges adjustably secured upon presser-feet. *See* work supports &c. *below*.
- presser-wheels. [No cases.]
- work supports and guides—
- boot-sole type—
- horns other than rotary. *See* other than boot-sole type *below*.
- in outsole-sewing and fair-stitching machines. 160,948. 174,419. 210,515.
- edge-guides moving laterally during stitching. *See* feeding work during stitching *above*.
- in welting and turn-shoe machines, (including welt-end cutting and holding devices). 160,948. 168,399. 170,762. 190,763. 239,279.
- welt-guides for use in machines with rotary horns. *See* rotary horns &c. *below*.
- lasts, mounting. 215,772. 241,235.
- miscellaneous—
- stitching loose insoles. 217,836.
- rotary horns and related parts. 158,763. 160,948. 163,456. 163,967. 168,403. 190,763. 198,430. 202,223. 210,605. 210,606. 222,175. 222,213.
- other than boot-sole type—
- work-guides. 156,381. 157,612. 165,522. 173,274. 173,275. 195,255. 206,176. 210,678. 215,884. 222,684. 222,721. 225,497. 231,412. 233,394. 240,225. 243,585.
- edge-guides moving laterally during stitching. *See* feeding work during stitching *above*.

Sewing-machines—cont.work holding and guiding devices—*cont.*work supports &c.—*cont.*other than boot-sole type—*cont.*work-guides—*cont.*fixed plates for positioning work. *See*
work-supports *below*.folding-guides. *See* folding-devices
above.trimmings, guiding away. *See* trim-
ming &c. *above*.

work - supports. 164,256. 197,892.

199,740. 204,595. 204,596. 209,247.

215,884. 217,506. 218,936. 222,691.

222,721. 226,792. 235,866. 241,433.

grouped machines, arrangements for.

See grouped machines *above*.table extensions of work-supports and
work-receptacles. *See* stands *above*.wrappers, straw, paper, and like, making by
stitching. *See* kinds &c. (special goods,
machines &c. for) *above*.**Sewing-needles, bodkins, and hand
sewing-tools.**attaching to bobbin cases. *See* Bobbin &c.
cases, Domestic &c., [Class 18].attaching to bobbins, spools, and reels. *See*
Bobbins &c., [Class 120 (iii)].boxes and cases for. *See* Boxes &c., [Class 18].counting-apparatus for. *See* Counting-appar-
atus &c., [Class 106 (i)].crochethooks. *See* Crochethooks.cushions for. *See* Pincushions, [Class 131].displaying and storing for sale or inspection.
See Displaying and storing articles &c.,
[Class 3 (ii)].feeding automatically. *See* Feeding separate
like articles &c., [Class 117].hand sewing-tools, (including sewing-apparatus
without work-supports). 159,105. 163,390.

168,817. 175,850. 180,730. 185,336. 185,401.

189,705. 191,018. 194,243. 194,816. 197,512.

199,225. 199,970. 202,974. 206,023. 224,721.

225,017. 242,110.

making and treating by operations of interest
apart from product. *See* separate headings,
such as Annealing &c., [Class 72]; Electro-

lysis &c., [Class 41]; Grinding and polishing,

[Class 60]; Metals, Cleaning &c., (tapering

by chemical action), [Class 82 (ii)]; Metals,

Shearing &c., [Class 83 (iv)].

packing and wrapping-up for transit. *See* Pack-
ing &c., [Class 94 (i)].picking-up tools for, hand. *See* Reachers &c.,
[Class 61 (ii)].

sewing-machine needles. 185,401. 192,023.

240,326.

needles in running-stitch machines. *See*

Sewing-machines, (kinds &c.: embroidery

machines: running-stitch machines).

Sewing-needles—cont.

sewing-needles, bodkins, and plaiting needles—

bodkins and plaiting needles. 180,538.

181,143. 181,210. 195,970. 215,914.

224,094.

bristles and other pointing-materials incor-
porated with sewing-threads. *See* Sewing

&c., (misc.).

needles not passing wholly through work. *See*
hand sewing-tools *above*.other than with thread end clamping or
securing means, and bodkins and plaiting

needles. 185,052. 222,648. 240,326.

with thread end clamping or securing means.
174,319. 177,070. 181,210. 195,970.sorting. *See* Separating or sorting solid ma-
terials, [Class 117].surgical needle-holders. *See* Surgical operat-
ing-appliances, [Class 81 (ii)].threading-apparatus. *See* Needle-threaders.**Stilettoes and awls. 191,146. 196,703.**

202,813. 220,363.

alloys for. *See* Alloys, [Class 82 (i)].handles, (including fixing). *See* Hand-tool &c.

handles, [Class 61 (i)].

making and treating by operations of interest
apart from stilettoes and awls. *See* separate

headings, such as Annealing &c., [Class 72];

Grinding and polishing, [Class 60]; Metals,

Shearing &c., [Class 83 (iv)].

racks or brackets for supporting. *See* Brackets
&c., Wall &c., [Class 52 (v)].**Thimbles, finger shields, and palm
protectors. 158,864. 167,906. 177,604.**

184,969. 241,700.

electricity, administering by. *See* Electric &c.
appliances, Medical &c., [Class 81 (ii)].holders and cases for. *See* Work-boxes &c.,
[Class 133].making and treating by operations of interest
apart from product. *See* separate headings,

such as Electrolysis &c., [Class 41]; Metals,

Stamping &c., [Class 83 (iv)].

Turning inside out flexible tubular and

182,972. 199,987. 208,868. 217,980.

Excepting Air and gases, Separating dust &c.
from &c., (turning bag filters inside out),

[Class 8 (ii)]; Boots and shoes, Apparatus

for making &c., [Class 17 (i)]; Boots and

shoes, Methods of making, &c., [Class 17

(ii)].

surgical and like bandages, making. *See*
Bandages &c., Surgical &c., [Class 81 (ii)].**ERRATUM**Page xiii. Col. 2. *After***Turning inside out flexible tubular and
add****other hollow articles. 157,612.**

NAME INDEX

The names in *italics* are those of persons by whom inventions have been communicated to the applicants for Letters Patent.

Acme Lock Stitch Sewing Machine Co.	157,767	Baker, F. ...	165,813. 200,536	British United Shoe Machinery Co., Ltd. 159,972.	160,887
Adrian, J.	231,086	Baker Sewing Machine Ltd.	165,813	163,456.	163,485. 163,967
<i>Adrian & Busch.</i>	221,130	<i>Balinky, A.</i>	163,390	168,399.	168,403. 170,409
229,538		Bann, H.	169,875	174,419.	174,440. 176,496
Ainley, H. F.	156,381	<i>Barber-Colman Co.</i>	168,626	~~190,547.~~	198,430. 200,180
157,612		<i>Barker, R. W.</i>	167,753	~~206,176.~~	222,213. 228,208
Akin, J. H.	170,755	Barry, H. A. L.	163,065	233,394.	~~239,279.~~ 240,225
Alexander, A. E.	185,337	Bartle, J. W.	170,761	~~244,513.~~	
203,368. 230,351		Bates, A. ...	174,419. 240,225	Bryson, & Co., Ltd., Spence.	
Allen, D. S.	174,319	„ A. M. 182,972.	208,868	See Spence.	
Allen, E. B.	174,921	<i>Becker, R.</i> 231,412.	234,404	Buchold, [Keller]. See Keller.	
209,087. 210,060. 236,844		Beer, G.	167,028	Buckley, G. A.	212,347
239,464.		Bell, F. J. T.	156,832	Buckley, Ltd., W. ...	212,347
Alonso, F.	175,433	164,390. 164,391. 164,400		Burgoyne, E. G. E. ...	168,399
<i>American Tobacco Co.</i> 230,351		177,636.		<i>Busch, Adrian & Co.</i> See <i>Adrian.</i>	
Amies, E.	177,604	„ H. C. 156,832.	164,390	Butler, A. J.	183,564
Amsden, F. H.	227,313	164,391. 164,400.	177,636		
Anciens Etablissements R. Cornely et Cie Soc. Anon. 221,776.		Bellow, A.	194,436	Campion, E. E.	175,498
Anker-Werke Akt.-Ges. 235,774		<i>Benjamin Co., Inc.,</i> E. V. 230,352		Carson, L.	163,380
<i>Arbetter Felling Machine Co.</i> 190,978		Benson, W. S.	167,906	<i>Chason, D. H.</i>	232,559
Arc & General Equipment, Ltd. 160,358		Bernard, G. E.	176,179	Chasselon, R. L.	195,970
Armstrong, J. J. V. ...	213,509	Berti, A.	179,855	<i>Christensen Machine Co.</i> 172,684	
213,853. 215,660. 217,821		Bingham, J. 171,861.	235,060	Claas, A.	230,720
219,843. 222,322. 222,684		Birch, R. R.	229,900	Clarke, A.	194,243
224,064. 226,636. 228,429		Bjerre, E. Fabricius- [Appx] 225,737		„ E.	194,243
228,619. 241,433.		Black, C.	231,273	„ H.	185,336
<i>Art Needle Manufacturing Co., Inc.</i>	189,705	Blackwell, E. O.	220,752	„ T. V.	197,512
Athos, H. Drossner et Cie, Etablissements. See Etablissements.		Blakeman, J.	191,146	Clarkson, A.	180,470
Atkinson, J. G.	240,326	Blockx, [veuve Baichez], J. 230,048. 241,900		Cloak, H.	231,273
Automaten - Strumpf-Stickerei System Lohse Akt.-Ges. 232,179.		Boivin, O.	217,836	Coe, G. W.	220,363
<i>Automaten-Strumpf - Stickerei System Lohse Akt.-Ges.</i> 226,122. 226,451.		Boston, J.	222,756	Cohen, N., [trading as Rose, N.].	193,443
Avis, S. W. 219,587. 219,588		Bott, G. F.	233,122	„ S., [trading as Rose, S.].	193,443
219,589		Bourgeois, A.	171,389	Cohn, S.	181,524
Axlrod, M.	185,152	<i>Boye Needle Co.</i>	188,616	Collins, J. L.	217,980
		Boys-Tombs. See Tombs.		„ W. P.	217,980
		Brase, [née Kruger], E. 226,484		Collyer, W. W.	170,763
		„ W. 205,800. 221,678		<i>Colman Co., Barber.</i> See Barber.	
		231,193. 232,609		Cook, J.	240,543
		<i>Brase, W.</i>	215,359	Cook & Sons, J.	240,543
		British Boot, Shoe, & Allied Trades Research Association. 191,146.		Coombes, W.	170,370
		British Thomson-Houston Co., Ltd.	231,168	Cooper, J. ...	156,824. 170,483
				188,736. 189,694. 189,695	
				197,054. 199,063.	
				Cornell, E. L.	159,770

Cornely et Cie Soc. Anon., Anciens Etablissements R. See Anciens.	Fairweather, W.—cont.	Goodwin, H.
Corrall, H. ... 157,569. 159,577	171,616. 171,812. 172,168	Gouldbourn, J. 163,456
168,633. 180,832. 190,915	173,411. 173,678. 174,809	163,967. 170,409. 228,208
195,164. 209,328. 215,884	175,386. 175,392. 175,944	Graaff, C. ... 215,359. 226,484
230,633. 230,652. 230,999	176,108. 176,296. 176,299	231,193. 232,609
231,322. 235,399.	176,993. 177,738. 178,743	Gracey, S. 218,171
Cranage, H. B. 211,596	179,278. 179,279. 180,212	Gradwell, C. 158,763
Cross, J. W. 185,929	180,590. 181,555. 181,556	Green, R. W. 183,553
Crozier, A. A. 196,703	181,639. 181,897. 182,033	Greenwood, C. H. 232,479
	182,057. 182,209. 182,547	Gregory, G. W. 220,761
	182,747. 182,958. 183,236	Grieb, A. ... 209,407. 232,923
	183,256. 183,586. 183,738	Groebli, J. A. 174,141. 214,752
	183,873. 184,134. 184,135	217,533
	185,005. 185,024. 185,070	Grossmann, A. 243,585
Darley, J. W. 162,505	185,627. 185,690. 185,697	„ H. [Firm of].
Daugart, [née Kroll], J.	185,710. 185,711. 186,130	225,497. 243,585
Dearborn, C. A. 180,298	186,565. 186,789. 186,798	Guise, J. 181,143
242,207	187,175. 187,193. 187,785	
Denman-Jones. See Jones.	188,252. 180,204. 189,680	
Denne, M. T. 222,175	190,048. 190,633. 190,663	Haenicke, A. 234,800. 242,232
Detroit Sewing Machine Co.	191,182. 192,904. 194,537	Hamel Shoe Machinery Co.
162,662. 162,663	196,388. 197,463. 197,614	163,132
Dieker, S. G. S. 218,545	197,629. 198,628. 201,298	Hanson, C. J. Whistler.
222,691	203,359. 206,374. 206,710	199,970
Diehl, F. 206,816	208,281. 211,410. 215,288	Harman, F. T. J. 211,518
Dietrich, J. C. & H. See Vogt-	215,688. 216,778. 217,156	211,815
tandische.	217,506. 217,509. 218,207	Härting, E. 215,363
Disney, L. S. 177,317	218,217. 219,582. 220,882	Hartmann, R. 179,633
Dixon, J. 203,392	221,115. 221,461. 221,729	Hat Manufacturers' Supply Co.,
Douthart, W. 163,380	221,952. 222,721. 223,124	Ltd. 170,761. 170,763
Dover, H. W. 196,832	223,162. 223,420. 223,801	Hatt, E. A. 168,715
Drake, J. J. 181,693	224,162. 224,845. 225,371	Hawkins, G. T. 200,043
Dredge, E. 224,721	225,431. 225,467. 225,748	Hazledine, P. J. C. ... 181,986
Droll, J. W. 187,816. 189,278	226,133. 226,134. 226,756	Head, D. E. 190,640
190,821. 190,822.	226,758. 228,085. 229,218	Heaton, P. 168,656
Droll Patents Corporation.	230,537. 231,081. 231,627	Heggie, J. ... 180,832. 190,915
187,816. 189,278. 190,281	232,896. 232,897. 233,260	195,164. 209,328. 230,633
190,822.	233,636. 233,812. 234,261	230,999. 231,322.
Drossner et Cie, Etablisse-	234,746. 239,126. 240,766	Heney, W. 171,861
ments Athos, H. See Etab-	240,776. 242,150. 243,237	Hennig, A. 235,774
lissements.	244,364.	Henshilwood, A. B. ... 168,231
Dumortier, A. 191,018	„ W. C. ... 163,132	Hepworth, J. W. 208,096
	177,390. 218,936	208,998. 212,064
Eanes, H. P. 189,609. 201,598	Farrar, F. W. 159,972	Hexagon Sewing Machine Co.
Eberhardt, H. 173,775. 173,776	Faulkner, J. A. 200,694	177,390
Eberhardt, H. 190,166	Feer, M. 241,700	Hickey, J. 192,833
Edridge, A. 202,813	Felton, W. ... 205,242. 242,376	Higgins, B. 172,455
Ehresmann, A. 157,921	Fifield, A. F. 211,855. 216,891	Hill, R. 234,290
198,296	Fischli, F. ... 157,410. 157,411	Houston Co., Ltd. British
Elbern, A. 230,094	Fitzgerald, J. 229,461	Thomson. See British.
238,243	Flanagan, J. A. 165,220. 165,522	Hoy, L. C. 227,313
Elesco Lace & Embroidery Co.,	165,527. 167,802. 179,092	
Inc. 210,196	Fox, W. E. 194,816	Iles, C. E. 227,313
Ellis, E. J. 209,247	Freer, H. H. 168,239	Imrie, H. ... 161,076. 163,221
Enriken, E. W. 217,030	Friesner, L. 200,713	190,978. 200,751. 224,469
Esche, M. S. 194,408		242,788.
Etablissements Athos, H.	Gardner, R. C. 173,455	
Drossner et Cie. 182,808	Genge, F. C. 173,708	Jackson, W. J. Mellersh.
	George, W. 199,225	163,225. 170,762
Fabricius-Bjerre. See Bjerre.	Gibbs Sewing Machine Co.,	Jerram, A. E. 160,887
Fahrni, O. 157,394	Ltd., Willcox & See Will-	Jones, A. Denman. ... 160,358
Fairweather, W. 155,867	cox.	„ E. H. R. 162,450
156,054. 159,051. 159,701	Giesser, W. 159,452	„ J. 175,850
160,275. 160,294. 160,295	Gill, P. J. 195,255	„ R. M. 200,043
160,920. 161,487. 164,256	Gimson Shoe Machinery Co.,	
164,858. 165,386. 165,678	Ltd. 222,175	
167,023. 167,410. 167,673	Goddard, J. T. 184,411	Kagansky, A. 160,948
	Golby, F. W. 208,968	

*Singer Manufacturing Co.—
cont.*

182,547.	182,747.	182,958
183,236.	183,256.	183,586
183,738.	183,873.	184,134
184,135.	185,005.	185,024
185,070.	185,627.	185,690
185,697.	185,710.	185,711
186,130.	186,565.	186,789
186,798.	187,175.	187,193
187,785.	188,252.	189,204
189,680.	190,048.	190,636
190,663.	191,182.	192,904
194,537.	196,388.	197,463
197,614.	197,629.	198,628
201,298.	203,359.	206,374
206,710.	208,281.	211,410
215,288.	215,688.	216,778
217,156.	217,506.	217,509
218,207.	218,217.	218,936
219,582.	220,882.	221,115
221,461.	221,729.	221,952
222,721.	223,124.	223,162
223,420.	223,801.	224,162
224,845.	225,371.	225,431
225,467.	225,748.	226,133
226,134.	226,756.	226,758
228,085.	229,218.	230,537
231,081.	231,627.	232,896
232,897.	233,260.	233,636
233,812.	234,261.	234,746
239,126.	240,766.	240,776
242,150.	243,237.	244,364
Singer Manufacturing Co., Ltd.		
157,569.	159,577.	168,633
174,921.	179,504.	180,832
181,693.	182,082.	190,915
195,164.	203,676.	206,816
209,087.	209,328.	210,060
211,855.	213,226.	215,884
216,891.	224,527.	226,792
229,900.	230,633.	230,652
230,999.	231,322.	231,412
232,559.	232,923.	234,404
235,399.	236,844.	239,464
Slater, C.		185,052
Smith, A. D.	162,662.	162,663
Smith, R. O.		222,682
Soc. Anon. des Anciens Etab- lissements R. Cornely et Cie.		
195,587.		
Soc. Anon. La Cellophane.		
	159,867	
Soc. Anon. Maquinas Reforza- doras de Alpargatas.		
	175,433	
Soc. Anon. Plantillers Lenegoa.		
	178,132	
Sokal, S.	189,331.	190,763
192,023.	221,130.	229,538
Somerset & Co., Ltd., T.		
	176,657	
Southwell, A.		178,315
Souttar, H. S.		177,070

Spence, Bryson, & Co., Ltd.

	218,171	
Spencer, A. B.	231,977	
" G.	231,977	
" W. H. C. ...	175,096	
Spiers, W.	220,366	
	239,268	
Spindler, F. G.	231,122	
Stäubli, Geb.	171,364	
Stäubli, H. ...	173,679.	176,460
" R. ...	173,679.	176,460
Stäubli & Co., Geb. ...	237,193	
	243,303	
Stedler, H. W.	166,046	
Stettith, O., [known as]. See Pokorny.		
Stevens, B. A.	157,569.	159,577
	168,633.	215,884
Straub & Co.	157,682	
Streibel, L. ...	157,921.	198,296
Taffin, H. P.	177,535	
Taft, E. A. ...	167,753.	185,308
Taylor, A.	183,026	
" T.	177,369	
	180,151	
Thirlby, T. F.	227,313	
Thompson, W. P.	161,874	
167,057.	168,205.	172,531
173,395.	184,044.	186,475
186,744.	197,622.	197,892
197,893.	198,972.	198,973
198,974.	201,096.	202,898
203,594.	204,245.	204,251
204,595.	204,596.	206,039
206,726.	206,727.	206,386
207,397.	208,004.	209,310
209,696.	210,378.	212,300
212,614.	212,615.	212,616
213,503.	216,904.	
Thomson-Houston Co., Ltd., British. See British.		
Thornton, A. A.	189,705	
	230,259	
Tilley, O.	211,052	
Tilliard, P. A. H.	194,696	
Toker, S. C.	243,120	
Tombs, E. S. B. Boys-.	160,549	
Turner, E.	201,320	
Twin Bobbin Sewing Machine Co., Ltd. ...		
	156,824.	156,832
164,390.	164,391.	164,400
170,483.	177,636.	188,736
189,694.	189,695.	197,054
199,063.		
Union Special Machine Co.		
161,874.	167,057.	168,205
173,395.	184,044.	186,475
186,744.	197,622.	197,892
197,893.	198,972.	198,973
198,974.	201,096.	202,898
203,594.	204,245.	204,251
204,595.	204,596.	206,039

Union Special Machine Co.—
cont.

206,726.	206,727.	207,386
207,397.	208,004.	209,310
209,696.	210,378.	212,300
212,614.	212,615.	212,616
213,503.	213,509.	213,853
215,660.	216,904.	217,821
219,843.	222,322.	222,684
224,064.	226,636.	228,429
228,504.	228,619.	237,426
241,433.		
Union-Special - Maschinenfabrik Ges.		
217,263.	225,762	228,886
235,866.		
United Shoe Machinery Cor- poration. ...		
215,772.	228,489	
228,504.	228,506.	241,235
United Shoe Machinery Cor- poration. ...		
163,485.	174,440	
190,547.	206,176.	239,279
244,513.		
Universal Art Stitch Machine, Ltd.		
	235,060	
Vaudin, P.	227,496	
Venditti, G.	185,401.	202,974
Victorius, M. L.	209,108	
Vogtlandische Maschinen Fabrik (vorm. J. C. & H. Dietrich)		
Akt.-Ges.	221,678	
Voss, M.	165,358	
Wade, H. ...	188,616.	238,301
Wakelin, A. J.	163,065	
Waldes & Spol.	170,553	
Walker, F. E.	231,977	
Waterfield, L.	203,392	
Watson, J.	222,087	
Weis, J. P.	169,028	
Welch, A. F.	231,168	
Westinghouse Electric & Manu- facturing Co.		
	160,255	
Wever, F.	214,748	
Wharrad, L. A.	222,648	
Whistler-Hanson. See Hanson.		
White, A. E.	163,390.	185,308
	187,487.	210,196
Whitehead, W.	187,856	
Wilber, C. ...	205,242.	242,376
Willcox & Gibbs Sewing Machine Co.		
	163,627.	185,062
Willcox & Gibbs Sewing Ma- chine Co., Ltd.		
	162,211	
163,627.	185,062.	199,740
Wilson, A.	168,231	
Winstanley, J. H.	177,369	
Withers, J. S.	242,563	
Wood, A. R.	226,972	
Woodcock, R. B.	168,403	
170,409.	176,496.	222,213
Woodroffe, C. H.	206,886	
Zamchick, L.	201,230	

ERRATA

The following abridgments should be *deleted*: —170,661. 174,164.

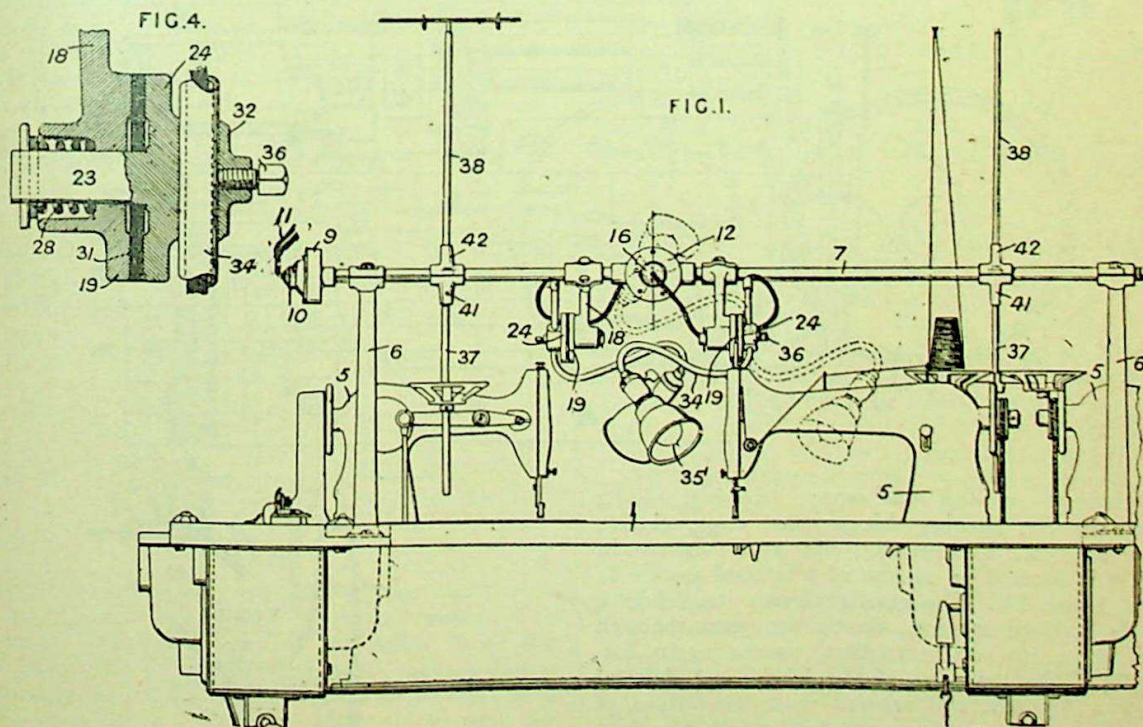
CLASS 112

SEWING AND EMBROIDERING

Patents have been granted in all cases, unless otherwise stated. Drawings accompany the Specification where the abridgment is illustrated, and also where the words *Drawings to Specification* follow the date.

PERIOD 1921—25

155,867. Fairweather, W., (Singer Manufacturing Co.). July 30, 1919.

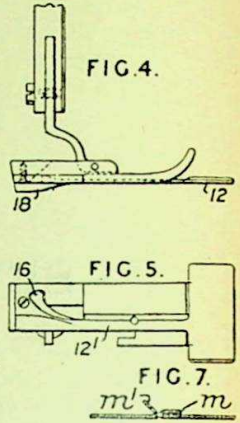


Sewing - machines; illuminating - apparatus; spools, holders for.—Sewing-machines which are operated in groups are provided with individual lighting units which may be easily adjusted so as to direct the light accurately upon the work. Machines 5 are mounted on a table top 1 carrying supports 6 for a conduit 7 having at one end a box 9 for a plug 10 of a supply circuit 11, and between the standards 6 an outlet box 12 for the reception of plugs 16 leading to the lights on opposite sides of the conduit. The lamps 35¹ are supported on S-shaped arms 34 frictionally mounted on arms 18 clamped to the conduit 7. In the frictional mounting, Fig. 4, the arm 18 has a disc-like extremity 19 through which passes a pin 23 formed in another disc 24 having a boss 32 which receives the arm 34. A spring 28 presses the discs 19, 24 into contact with a friction washer 31. By loosening a set screw 36 the lamps 35¹ may be moved from side to side of the stitching joint of the machine which is in the same vertical plane as the adjustable mounting 19, 24. The spool-holding and thread-guiding fixtures 37, 38 are secured by clamps 41, 42 to the conduit 7 so as to be adjustable thereon.

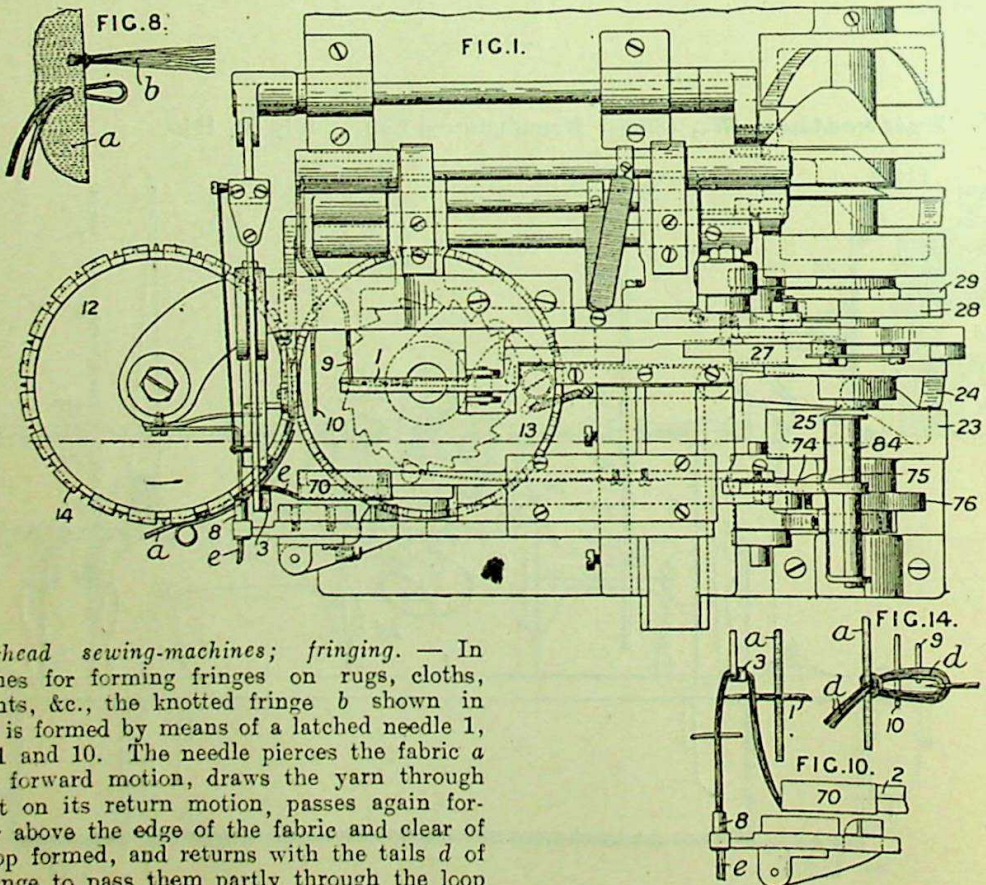
156,054. Fairweather, W., (Singer Manufacturing Co.). Aug. 10, 1920.

Sewing - machines; presser - feet; trimming.—

The edges *m*, *m'*, Fig. 7, of two fabrics after being stitched together are turned back as shown to facilitate subsequent pressing. The fabrics are fed one above and the other below a separating-plate 12, Fig. 4, attached to the presser-foot and the edges are trimmed after being stitched together. The edge of the upper ply rests upon the neck 12¹, Fig. 5, of the separating-plate and enters a guide scroll 16 by which it is turned back on to the upper surface of the fabrics. The lower ply, which lies beneath the neck 12, is turned downwards by a projection 18 on the underside of the presser-foot. The trimming-blade is carried by an arm pivoted above the work support and oscillated by an eccentric on a shaft beneath the work support. It co-operates with a stationary cutting-edge formed on the thread plate.



156,362. Pass, A., and Perkins, A. Oct. 28, 1919.



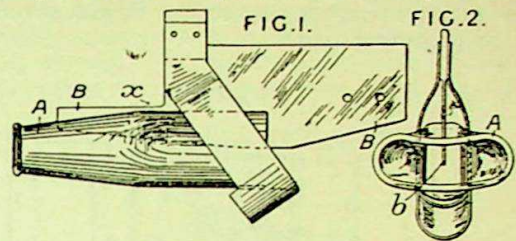
Overhead sewing-machines; fringing.—In machines for forming fringes on rugs, cloths, garments, &c., the knotted fringe *b* shown in Fig. 8 is formed by means of a latched needle 1, Figs. 1 and 10. The needle pierces the fabric *a* on its forward motion, draws the yarn through with it on its return motion, passes again forwardly above the edge of the fabric and clear of the loop formed, and returns with the tails *d* of the fringe to pass them partly through the loop

formed as shown in Fig. 14. Subsequently a fringe 9 pulls through the tails *d*, and a hook 10 clears the yarn from the needle hook. The supply yarn is passed through a guide 8 and is cut, prior to the tails being lifted and drawn through, by means of a combined clamp and cutter 70. A lifter 3 is provided to pull up the yarn into position for engagement by the needle hook. The fabric *a* is gripped by horizontal feed-wheels 12, 13, the former having flanges 14, overlapping the edge of the latter and serving as abutments for the fabric. The needle is carried by a bar 27 reciprocated by linkage from cams 28, 29 on a shaft 25. The clamping and severing device 70 is operated by a link 74, lever 75 and cam 76, adjustments being effected by moving the link 74 along a rod 84. Adjustment of the needle-carrier allows of different lengths of fringe being formed. In the position shown in Fig. 1, the yarn has been severed by the device 70 and its end *c* clamped and pulled over into position for commencing a new loop, a carrier 3 being ready to seize the bight of the yarn and present it to the hook of the needle, the latch of which has been opened as the needle passes through the fabric to receive the yarn. The latch closes as the needle returns. The feed-wheels are operated by ratchet mechanism from cams 23, 24 on the shaft 25. The finger 9 and hook 10 may be dispensed with by giving a greater traverse to the needle.

156,381. Ainley, H. F. Nov. 21, 1919.

Sewing-machines; work guides.—Catamerial bandages are made in a sewing-machine. A single piece of fabric is passed over the exterior of a tube *A* and the edges are stitched together by the needle at *x*. The fabric tube is then turned into the mouth of the tube and is drawn through by suitable mechanism. A fitting is applied at the mouth of the tube and is drawn in with the fabric. Both the ends of the tube are oval but their longer axes are at right-angles as shown in Fig. 2. A

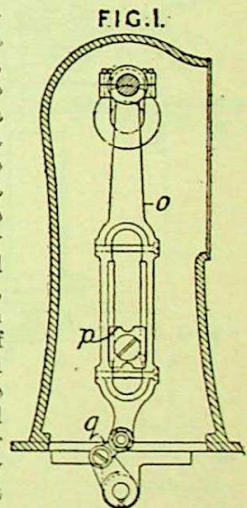
pin *b* projects within the tube and bends the filled bandage into a U-shape to enable it to pass out of



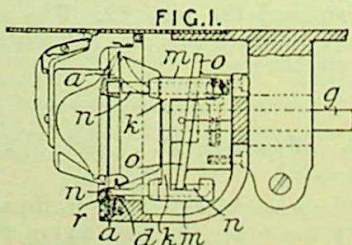
the right-hand end of the tube. By these devices the single seam in the bandage is positioned along the middle of the back of the bandage.

156,824. Cooper, J., and Twin Bobbin Sewing Machine Co., Ltd. Feb. 14, 1919.

Sewing-machines; lock-stitching by shuttles.—In a two-reel sewing-machine, the under-thread reel-case is rotated continuously in a circular race by means of a driver of usual form, the horns of which permit a slight movement of the shuttle relative to it. By suitable acceleration and retardation of the driver, the shuttle moves from contact with one turn of the driver to the other and back again to permit the passage of the needle-thread loop. The mechanism for giving a variable rotary motion to the shuttle shaft comprises a pitman *o*, a rocking-sliding pivot *p*, and a drag-link *q*.



156,832. Bell, F. J. T., Bell, H. C., and Twin Bobbin Sewing Machine Co., Ltd. June 11, 1919.



Sewing-machines; lock-stitching by shuttles.—A ring shuttle *a* is driven by pins *n* mounted to slide in sleeves *m* carried by arms *k* of the driving-shaft *g*. The pins are moved longitudinally to engage and release the shuttle by a fixed cam-disc *o*. The rear ends of the pins are

notched to coact with the periphery of the disc and are provided in axial bores with spring-pressed bearing-members for taking up wear and preventing backlash. The shuttle ring is provided with a rim *r* lying outside the race *d* and of greater diameter than the race surface for the purpose of keeping the loop of needle thread clear of the race surface. The race is provided with a recess which communicates with the race surface and contains a pad of absorbent material to which lubricant is supplied.

157,394. Fahrni, O. Nov. 10, 1919, [Convention date].

Embroidery machines.—In a Heilmann type embroidery machine, the needle-carriages have a short stroke of constant amplitude and the threads

are tightened in the work by take-up frames the stroke of which is diminished for each stitch by an amount corresponding to the thread absorbed in the preceding stitch.

FIG. 2.

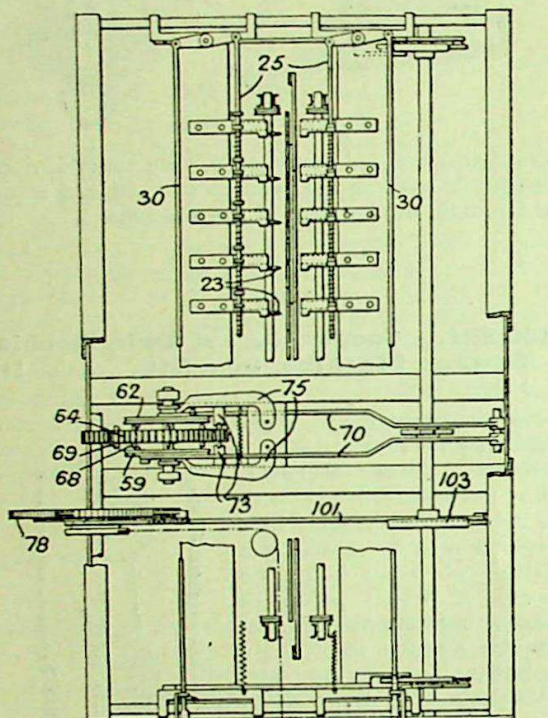


FIG. 6.

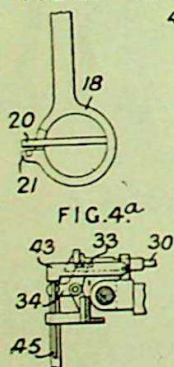
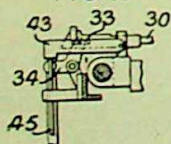
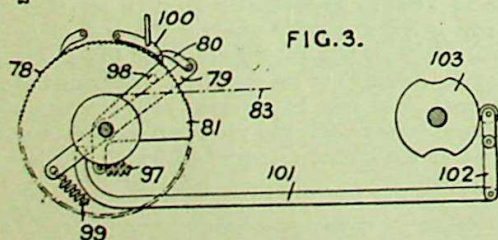
FIG. 4^a

FIG. 3.



Needles, driving.—The needles 23 are clamped between fixed arms 20, Fig. 6, and projections 21 on sleeves 18. All the sleeves of one needle-carriage are actuated simultaneously to clamp the needles, by a rod 25 which is linked to a rod 30 also mounted on the carriage. As the carriage

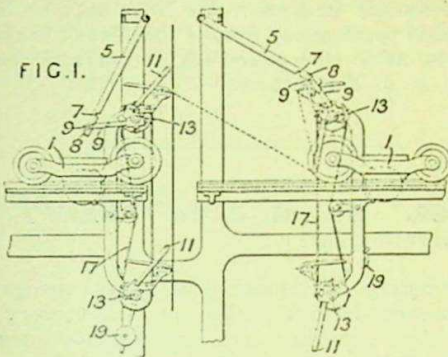
is moved up to the work frame, a slot 33, Fig. 4^a, in the end of the rod 30 is passed over a pin on a lever 34 and, that lever being then actuated by a cam, the needle-clamps are closed. A latch 43 locks the rod 30 so that the needle-clamps remain closed when the carriage is moved away and when the carriage is moved forward again the latch is removed by a rod 45 which is raised by a cam.

Take-up devices.—The take-up frames are raised and lowered by means of cords passing over pulleys 59, 62 mounted freely on either side of a spur-wheels 64. The pulleys are rotated clockwise into the same positions in each cycle by means of connecting-rods and cam-actuated rods 70 but the rods 70 are returned by springs and the pulleys move backward only so far as is determined by the position of pins 68 on the wheel 64 with which pins on the pulleys engage. The wheel 64 is given a forward movement corresponding to the amount of thread absorbed in the preceding stitch by means of a ratchet wheel 78 which is rotated step by step by means of a pawl 80, Fig. 3. The pawl is moved backwards positively by a lever 79 and cam gear 101, 102, 103 and is moved forward up to a pin 98 by a spring 99. The pin 98 is carried by a sector 81 which is positioned in each cycle by jacquard mechanism and is then locked by a detent 100. The jacquard mechanism includes a cord 83 secured to the sector and passing over pulleys 93 on a series of levers 89 of different lengths. The levers 89 are held in the position shown by pins 86 which rest upon a pattern card. In accordance with the thread absorbed in the last stitch, certain of the pins fall into perforations in the pattern card and the cord 83 which is held taut by the spring 97, Fig. 3, pulls the corresponding levers 89 inwards and the sector 81 moves through a distance equal to the sum of the distances corresponding to the several levers moved. Levers 106 and pins 107 are used to return the levers 89 to their initial positions. The movement of the wheel 64 through a quadrant corresponds to the whole length of the needle-thread. Accordingly four pins 68 are provided on each side of the wheel 64 and at the completion of a quarter of a revolution, when the needles are re-threaded, outer pins 69 engage wedge-pieces 73, Fig. 2, force them and the levers 75 carrying them outwards and thereby move the pulleys 59, 62 away from the wheel 64 so that the pins 68 can pass the pins 62. The pulleys are immediately returned and the sequence of movements recommences.

157,410. Fischli, F. April 3, 1915, [Convention date].

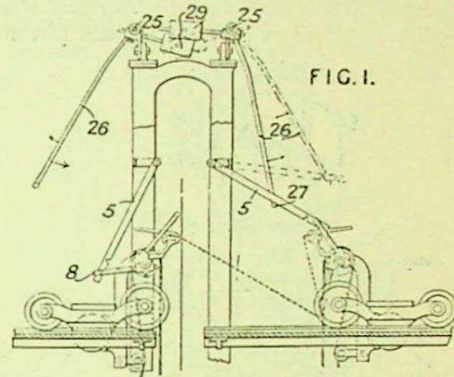
Embroidery machines.—In a Heilmann type of embroidery machine, thread-drawing rods 11 are carried by arms secured to shafts 13 mounted upon the needle carriages 1. Arms 8 on the shafts are pivotally connected with pendulum arms 5 and as the carriages move away from the embroidery frame the shafts 13 turn and move the thread-drawing arms downwards. The shafts 13 of the lower needle ranks are connected to the

upper shafts 13 by perforated belts 17 and sprocket wheels. The connection between the arms 8 and



5 is provided by pins 9 and slots 7 and balance weights 19 keep these parts in engagement on the return of the carriages.

engagement with the arms 8 of the thread-drawing shafts. As many arms 26 as there are arms 5 are secured to counterweighted shafts 25 and normally occupy the positions as shown on the left of the Figure. To withdraw the arms 5, a shaft 25 is turned so as to carry its arms 26 downward



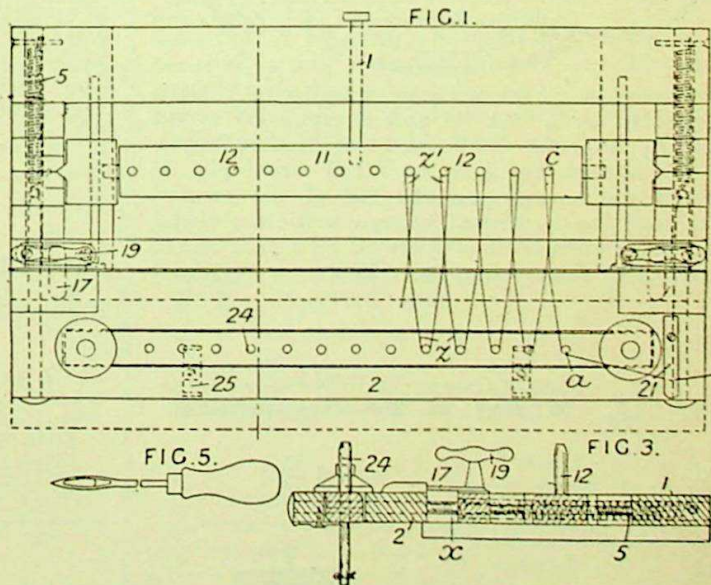
157,411. Fischli, F. Nov. 23, 1918, [Convention date]. Addition to 157,410.

Embroidery machines.—In a machine as described in the parent Specification, rods 26 are provided for lifting the pendulum arms 5 out of

and is moved axially so that the bent ends 27 of the arms lie under the arms 5. The shaft is then released and its counterweight 29 causes it to move so as to bring the arms 26 into the position as indicated by the dotted lines in the right of the Figure.

157,533. Macconel, W. Oct. 14, 1919.

Fringing-machines.—A rectangular frame is made in two parts 1, 2, Figs. 1 and 2, the part 2 being capable of being moved by cams 17 operated by handles 19 so as to leave a gap x between the parts. The garment edge is inserted in the gap and the handles 19 turned, whereupon springs 5 close the gap. Two series of pegs 12, 24 are respectively mounted on the parts 1, 2 and yarn threaded on a needle, which may be as shown in Fig. 5. The yarn is passed round a guide 21, round the peg a through the garment, round the peg c through the garment and so on. The front loops z , after being cut, are passed through the back loops z' and pulled tight to form knots. To free the loops z from the pegs 24, the pegs are allowed to drop by engaging a turn-button 25, and the loops z' are freed by tilting the bar 11 on which the pegs 12 are fixed.



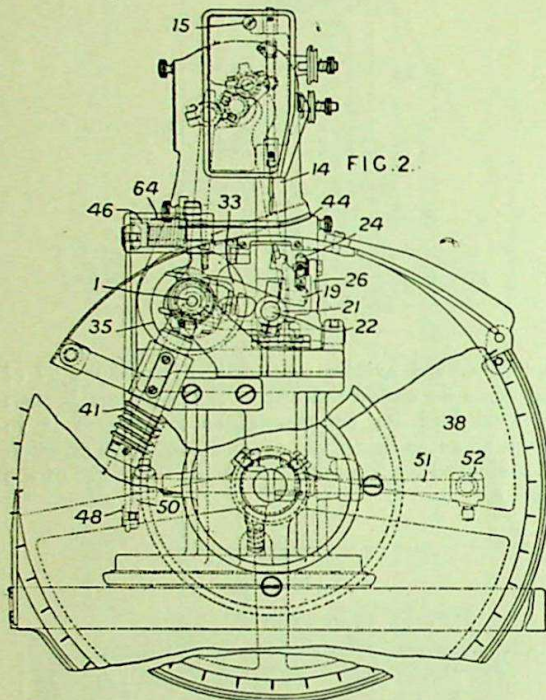
157,569. Singer Manufacturing Co., Ltd., Corral, H., and Stevens, B. A. Oct. 25, 1919.

Sewing-machines; feed by wheels; needle-bars vibrating laterally.—The work is fed continuously by a spiked wheel 38 and the stitch-forming de-

vices are vibrated positively in the line of feed. The stitch-forming devices are carried by a frame 14 pivoted at 15 and oscillated by direct connection with a cam-groove 35. To engage the needle-thread loops, the looper is oscillated about a pivot 19 by a pitman 24 and crank 26. Needle-avoiding movements are given to the hopper by

the oscillation upon a pivot 22 of the carrier 21, 33, upon which the pivot 19 is fixed. The cam 35 is on the main shaft, and that shaft is geared directly by bevel-wheels and a worm 41 to a toothed ring on the feed wheel 38. To vary the feed, the cam 35 and the gear drive of the feed-wheel 38 are changed.

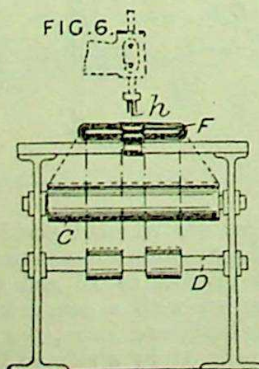
Presser-bar lifting devices; starting and stopping gears.—A presser 44 is pivoted upon a pin 46 and



is pressed on to the work by a spring 64. It is connected by a link 48 and a crank 50 to the starting lever 52. Sufficient lost motion is provided between the link and the crank-pin to permit the normal use and fall of the presser. The machine is driven through a friction clutch and the control lever is operated by a cam on the shaft 51 of the starting lever 52.

157,612. Ainley, H. F. Nov. 21, 1919.

Sack-sewing machines; work-guides.—Fabric tubes which may afterwards be cut into short lengths to make bags are made in a two-needle machine. A single web of fabric is fed from a roller C, over guides F, which turn the two edges up and over so as to lie side by side along the middle of the web, is stitched by two independent needles and



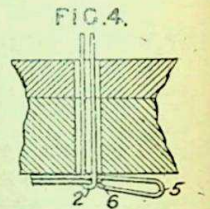
is cut, after the stitching, by a cutter h so as to become two separated fabric tubes. The tubes may be wound on to a roller D or may be drawn backwards through the hollow formers of the work-guides so as to turn them inside out and then be wound on to the rollers.

157,682. Straub & Co. March 1, 1920, [Convention date].

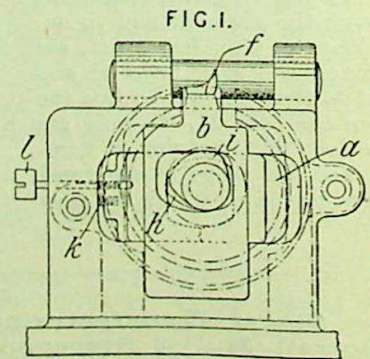
Embroidery.—Coloured ornamental designs are produced on fabrics partly by embroidery and partly by spraying colours thereon through stencils, before, after or during the embroidering. The spray-stencilling may be effected on the frame of an embroidery machine either before or after embroidering the design, or after partly embroidering it, and one or more stencils may be used for one or more colours. Dyes or colours which will dry rapidly are preferably used.

157,767. Acme Lock Stitch Sewing Machine Co., (Assignees of Myers, C.E.). March 29, 1917, [Convention date].

Stitches.—A needle-thread loop 2 is entered by a loop 5 of a second thread and a short piece of a third thread 6 is passed through the loop 5. The needle-thread is then drawn into the work.



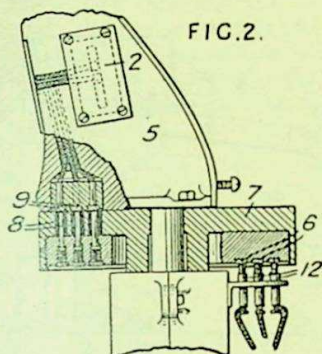
157,921. Ehresmann, A., and Streibel, L. March 4, 1919, [Convention date]. Void [Published under Sect. 91 of the Act].



Sewing-machines; feed by dogs.—A feed tooth f is carried by a flat plate b sliding vertically in a plate a which slides horizontally in the bed-plate. The plates are moved positively upwards

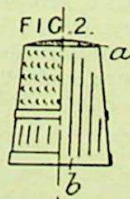
and to the left, respectively, by cams *h, i*, on the shuttle shaft. The plate *b* is moved downwards by the pressure on the work and the plate *a* is moved to the right by a spring *k*. A screw *l* determines the movement to the right and consequently the length of the stitch.

158,763. Gradwell, C. Dec. 8, 1919.



Sewing-machines; waxing thread; rotary horns.—Wax-pots and rotary horns are heated by electric coils. Several coils 2 are located at either side and the back of a rotary horn 5 and their circuits include spring contacts 8, 9 and contact rings 6 with brushes 12. The rings permit the usual rotary movement of the horn, and the contacts 8, 9 permit adjustment of the horn body upon the table 7. The coils may be controlled by a switch by means of which one, two, or three coils may be put into use. The wax-pot may have four heating-coils, the circuits being controlled by a three-position switch by means of which one, three, or four coils may be put into use.

158,864. Pesenti, M. L. Feb. 10, 1920, [Convention date].

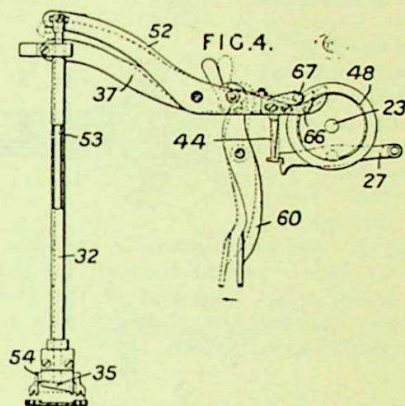


Thimbles.—A thimble is made with a circular crown *a* and an elliptical lip *b*.

159,051. Fairweather, W., (Singer Manufacturing Co.). Dec. 3, 1919.

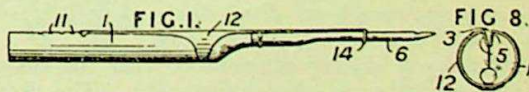
Sewing-machines; trimming or cutting.—In a two-needle machine for attaching tape to garments so as to form pockets for stiffeners, the tape is cut, automatically, and without stopping

the machine, when the garment passes away from the stitching-point. For this purpose, the cutter gear is normally held inoperative by a detector device which rests on the surface of the work and, when the work passes from under it, falls into recesses in the work-plate. A tape-cutter 35 is carried by a tubular bar 32 pivoted to a lever 37 carrying a latch lever 44 which may be coupled to a continuously oscillating lever 27. The latch lever is held normally, against the pull of a spring, out of engagement with the lever 27 by



the contact of a pin 67 upon it with the end 66 of a lever 52 which is pivotally connected with the upper end of a bar 53 having a foot 54 which straddles the tape and rests upon the garment to which the tape is being stitched. The lever 52 may be held in the raised position during most of the stitching by a hand-latch 60 and when that is removed, a ring segment 48 on a disc 23 which engages with a lug on the end 66 of the lever 52 intermittently frees the lever so that the presence of the garment may be tested.

159,105. Pade, G. V., and Neitzel, C. T. April 14, 1920.

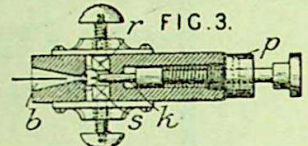
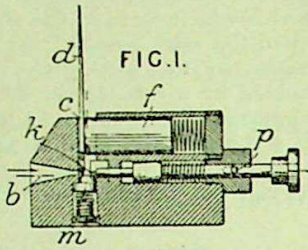


Hand-sewing tools.—A tubular needle 6, of the type described in Specification 140,012, is detachably secured to a tubular holder 1, the sides of which are brought together at 3, Fig. 8, and then turned inwardly. A gauge 12 is carried by a piece 12 which embraces the holder at an intermediate part and at its end is formed with a pawl which is placed in one or other of holes 11 to determine the position of the gauge in respect to the needle.

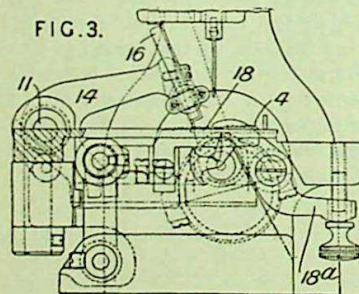
159,452. **Giesser, W.** July 20, 1920.

Needle - threaders.

—A needle *d* is inserted in a recess *c* where it is held by a spring - pressed plunger *f*. The needle is used to depress a part *m* and when that is depressed a positioning pin *k* is freed, is moved forward by a spring and, entering the needle - eye, positions it in front of the funnel *b*. The pin *k* is then removed and being turned through a right-angle is held withdrawn by a cross-pin *p* while the thread is passed through the funnel *b* and the needle eye. The end of the thread is then gripped between two sliding blocks *r* and *s* and the needle is withdrawn.

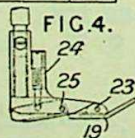


159,577. **Singer Manufacturing Co., Ltd., Corral, H., and Stevens, B. A.** Nov. 27, 1919.



Sewing-machines; trimming or cutting.—A reciprocating cutter 16 is carried by a rocker 14 pivoted at 11 rearward of the feed-operating connections and actuated by a sliding connection with the sleeve of an eccentric on the mainshaft. The fixed blade 18 is clamped in position by a lever 18^a.

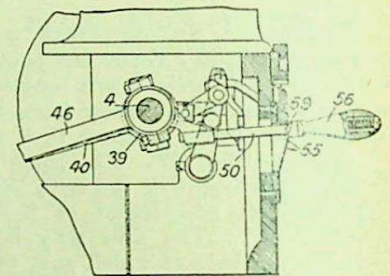
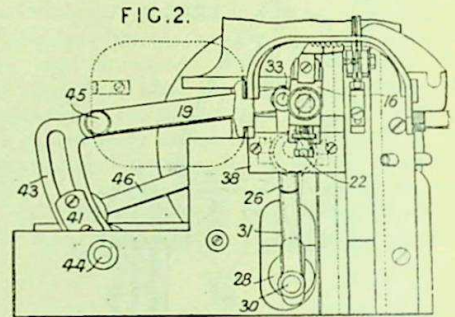
Presser-foot; feed.—A forward portion 19 of the presser-foot is pivoted at 23 and a rearward portion is pivoted at 25 and is pressed downwards by a spring 24. The feeding surface of the feed-dog 4 is higher at the front than at the back.



159,701. **Fairweather, W.,** (Singer Manufacturing Co.). Dec. 29, 1919.

Sewing-machines; feed by dogs.—The feed-rock shaft 44, Fig. 2, is oscillated by an eccentric 39, Fig. 4, and rod 40 adjustably connected to a

slotted arm 43 fast on the shaft and to which the feed-bar 19 is pivoted at 45. The slide-block 41 is engaged by the forked end of an arm 46, Fig. 4, pivoted on the shaft 4. A forward extension 50 of the arm carries a handle 56 having pins 59 which, when the arm has been adjusted, enter sockets 55 and lock the arm in place. Vertical movements are imparted to the feed-dog by means of an upright link 31 pivoted to the feed-bar at 33 and to an eccentric-rod 26 at 30. The pivot-pin 30 is guided in a slot in a revolvably adjustable head 28 and the inclination of the slot

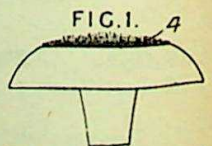


determines the lift given to the feed-dog. The pin 33 extends through a long boss which projects laterally from the feed-bar and to accommodate this the eccentric rod 26 and the link 31 are cranked, the off-set upper part of the link 31 being guided by a plate 38. The feed-dog is secured in a block 16 adjustable upon the feed-bar, and fine adjustment of its position is effected by a screw 22. The feeding-surface is gouged out in the line of the seam and has two prongs standing above the general serrations which insure against slip of the work.

159,770. **Cornell, E. L.** March 29, 1920.

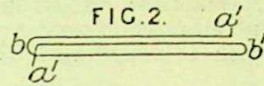
Darning.—A darning-block

is provided with a surface made up of the ends 4 of wires or the like. The wires may be mounted upon a backing and secured in a recess cut in the head of the block. In place of recessing the block, the wires may be surrounded with a ring secured to the block.

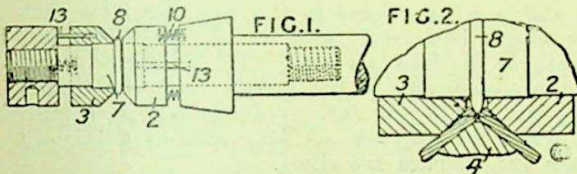


159,867. Soc. Anon. la Cellophane.
March 4, 1920, [Convention date].

Special threads for use in sewing.—Strips or bands, which are of great rigidity and may be used for decorative purposes, are produced by folding cut strips or bands of cellulosic material, such as a cellulose obtained from sodiumxanthate and cellulose acetate, into layers to replace the original serrated cut edges a^1 by folded edges b, b^1 , the air remaining between the layers of the bands rendering them opaque. The cut strips may be folded in three layers, as shown, or in two layers, the edges meeting at the middle, about which the strip may again be folded.



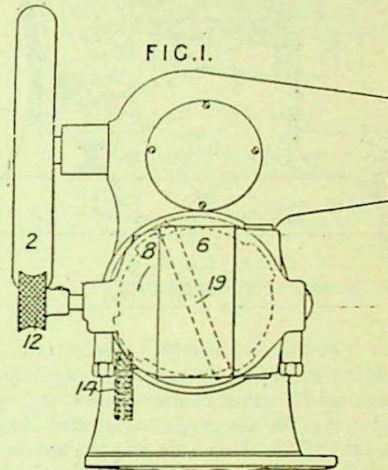
159,972. Farrar, F. W., and British United Shoe Machinery Co., Ltd.
Dec. 8, 1919.



Seams, pressing.—Relates to seam rubbing or pounding machines for boot uppers or the like of the type described in Specification 11619/15, and consists in the provision of a plough engaging the edges of the work united by the seam, and yielding means acting on the work at each side of the plough. As shown, the rotary feed shaft 7 carries a peripheral rib 8 co-operating with the rigid work support 4. On each side of the plough are conical

members 2, 3 constrained to rotate with the shaft by pins 13 and pressed towards the plough by springs 10.

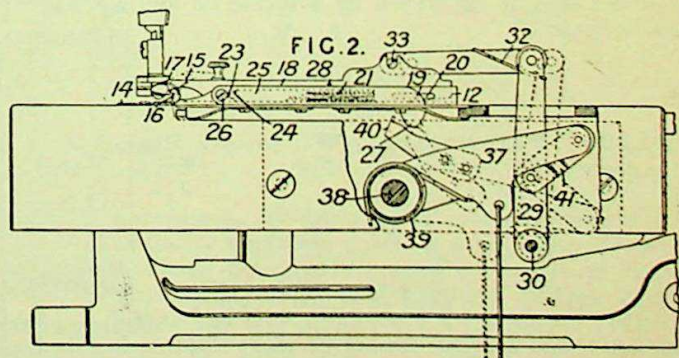
160,255. Le Tall, F. W., (Westinghouse Electric & Manufacturing Co.). Dec. 15, 1919.



Sewing-machines; driving.—An electric motor 6 is mounted on the machine head by means of a bayonet-joint fitting. When inserted into the socket of the joint, the motor is turned anti-clockwise and compresses a spring 14, which afterwards serves to press the driving-wheel 12 into contact with the hand-wheel 2 of the sewing-machine. Axial shake is prevented by a leaf spring 19 which in addition to the rigid lugs 8, engages the bayonet-socket.

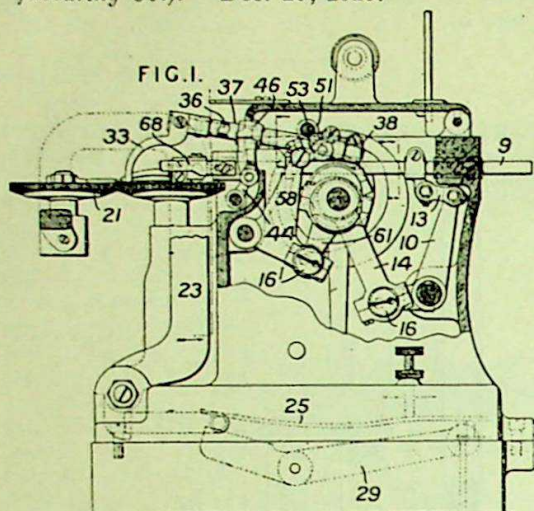
160,275. Fairweather, W., (Singer Manufacturing Co.). Dec. 18, 1919.

Sewing-machines; folding-devices.—A hemming attachment is formed in two sections, one of which is removable from the other without disturbing the previously formed hem, to facilitate insertion of work. The fixed base section 14 has an upstanding wall 15, the edge 16 of which co-operates with the straight edge of the roof section 17 secured to a bar 18 guided between ribs 12. The bar is positioned and guided by pin-and-slot connections 19, 20 and 23, 24 with the ribs 12 and is urged to the right, Fig. 2, by a spring 21. To separate the sections, the bar 18 is moved in a curved path by the combined action of a lift lever 25 pivoted at 26 and engaging a pin 28 on the bar, and a lever 29 pivoted at 30 and detachably connected at 33 by a link 32 to the bar. The levers are actuated by a treadle-operated lever 37 pivoted at 38, which carries a projection 40 adapted to contact with a lug 27 on the lever 25, and is connected by a link 41 with the lever 29. On de-



pressing the treadle, the lever 37 is turned against the action of the spring 39, whereby the bar 18 is first moved to the left to disengage the slot 24 from the pin 23 and is then swung upwardly and to the right by the action of the projection 40 and the link 32 as the lever 29 moves to the position indicated by dotted lines.

160,294. Fairweather, W., (*Singer Manufacturing Co.*). Dec. 29, 1919.

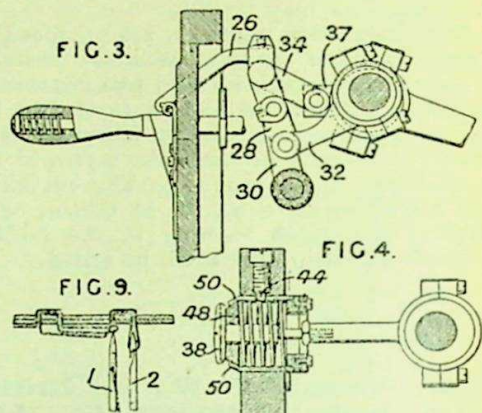


Overhead sewing-machines, scale-pan type. The shaft 36 of a looper 33 is revolvably supported within a sleeve 37 and is oscillated by a ball-ended lever arm 38 secured to it and engaging a cam groove. The sleeve is supported in front by means of a U-shaped yoke 46, fixed upon it and pivoted to links 44 and at the rear by a link 51. It is reciprocated by means of a cam-lever 58 and a link 53 which together form a toggle and thereby provide a dwell at the forward end of the stroke. The needle bar 9 is reciprocated by means of a cam lever 10 and a link 13. To adapt the machine to both thin and thick work, the strokes of the needle-bar and the looper may be varied by means of the eccentric mounts 16, 16' of the pins in the levers 10, 58 which connect them with the pitmans 14, 61. A thread clamp carried by the needle-bar is intermittently released by means of a fixed cam-plate 68. A thread take-up eye is secured upon the top of the yoke 46. The presser-wheel 21 is carried by a curved arm 23 controlled by a spring 25 and a treadle-lever 29.

160,295. Fairweather, W., (*Singer Manufacturing Co.*). Dec. 29, 1919.

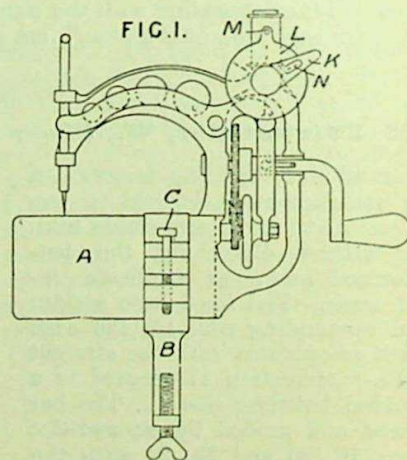
Sewing-machines; loop stitching; governing needle thread.—In a machine making a stitch as shown in Fig. 9 by means of an eyed needle and a hooked needle 2 and more particularly intended for straw-plait sewing, the stroke of the take-up lever and the timing of the thread lock are varied automatically as the length of feed is varied. The take-up arm 26, Fig. 3, is integral with a lever 28 pivoted near its middle on the free end of a lever arm 30. The lower end of the lever 28 is connected directly to an eccentric-rod 32 and the upper end is connected by a link 34 with an eccentric sheave 37 which actuates the feed shaft. As explained in Specification 159,701, the feed is varied by swinging the eccentric sheave

37 and its rod about the eccentric itself and in doing this the amplitude and the field of the take-up vibration is varied. A thread lock, Fig. 4, comprises an eccentric-actuated member 38 and a spring-pressed member 48 the position of which is determined by a containing sleeve 50.



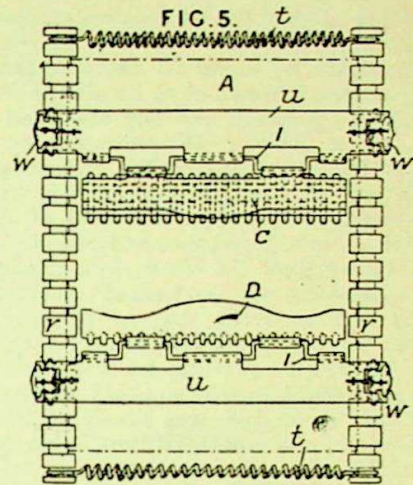
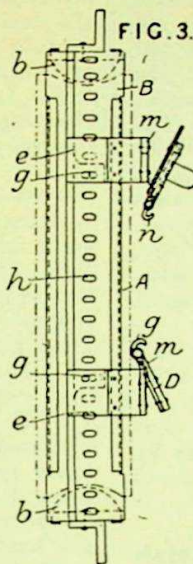
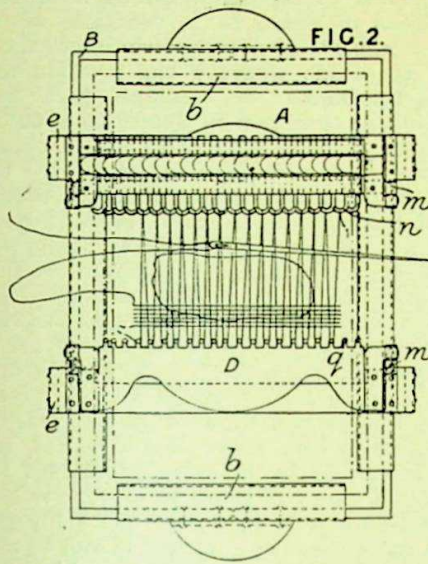
The sleeve has an oblique slot engaged by a pin 44 and is so connected to the feed regulator that the sleeve is turned and consequently moved axially as the feed is varied. The combined effect of the adjustment of the take-up and the thread lock is to cause the take-up to operate as a pull-off when the stitches are long and as a take-up when the stitches are short.

160,358. Arc & General Equipment, Ltd., and Jones, A. Denman-. March 3, 1920.



Portable machines; frames.—A light machine is constructed with a thin sheet-metal cylindrical work-supporting arm A held in clamp C integral with a table or like clamp B. The machine can be turned within the clamp C into a suitable position for use.

Thread-tensioning devices.—The thread tension is varied by the rotation of an arm K having a slot N through which, on a disc L, can be read the description of the kind of work for which the particular setting of the arm is suitable.

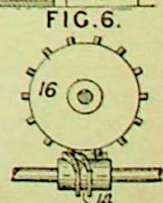
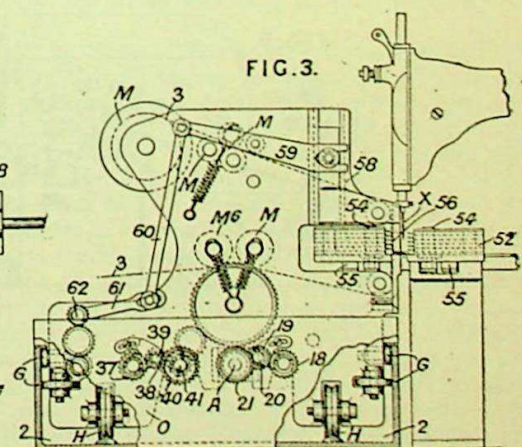
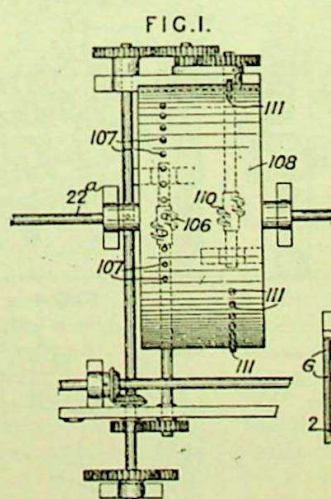
160,381. **Ochsenhirt, R.** May 26, 1920. No Patent granted (Sealing fee not paid).

Darning.—The material to be darned is stretched over a block A and is held by a frame B, the sides of which have spring clips *b* fitting grooves in the sides of the block. The warp threads are fastened in the material and stretched between rotatable hooks *n* carried by a carrier C and fixed hooks *g* on a carrier D. The carriers are pivoted, to allow of their being turned up to free the hooks of the warp threads, in spring-pieces *m* which are attached by spring plates to L-shaped clamps *e* sliding in guide slots in the frame sides and having inwardly projecting lugs *g* adapted to engage holes *h* in the frame sides, whereby the carriers may be adjusted and fixed

at any desired distance apart. In a modification, Fig. 5, the frame and spring clips are replaced by bar *r* having circular or spiral grooves and held in contact with the grooved sides of the block A by springs *t*. The carriers C, D are pivoted to cranks of shafts 1 mounted in bridges *u* which are provided with spring clamps *w* adapted to engage the grooves in the bars *r*. In Fig. 5, the carriers are shown turned up in position to permit the warp threads to be removed from the hooks. A darning-needle is used to pass the weft thread through the warps and insert it in the material.

160,549. **Tombs, E. S. B. Boys.** Dec. 22, 1919.

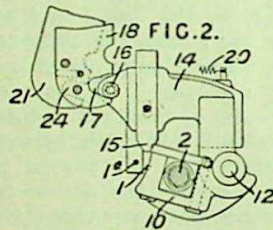
Sewing-machines; folding devices; feed by clamps; feed by moving machine; feeding long lengths of fabric.—Fabric from a roll 3 is led by means of guide-rollers M and a feed roller M⁶ past a sewing-machine X. Blades 52 form transverse pleats in the fabric which are stitched in place as a carriage O supporting the fabric and the rollers is moved step by step across the front of the sewing-machine. The carriage O is guided within a box 2 by rollers H and G and is moved transversely by a feed-screw A which is intermittently rotated by means of a pin wheel 16, Fig. 6, and a continuously rotating cam 14. Clutches are provided for reversing the feed so that pleats can be stitched in both journeys of the carriage. The feed-roller M⁶ is turned a suitable distance after the completion of a row



of stitches by spur-gearing and a long toothed drum 41 extending from end to end of the box 2. Change-wheels 18 - 21 and 37 - 40 are provided to vary the movements of the feed-screw A and the feed-roller M^e. The blades 52 are reciprocated by slides 55 carrying pins 54 which project through cam-slots in all the blades. The pleats are pressed together and held for stitching by a presser 56 actuated by the parts 58 - 62. In place of the reciprocating blades 52 a pair of fixed pleating-guides may be used, and these are moved into and out of pleating position by cam-gear. All the movements in a sequence of operations are performed automatically by cams and to avoid the use of very large cam discs, the cam shaft 22^a is driven quickly, when the cams are operating by a fast-running worm 106 and diametrically opposed quadrants of pins 107 on a drum 108, and slowly at other times by a slow-running worm 110 and other quadrants of pins 111.

160,887. Jerram, A. E., and British United Shoe Machinery Co., Ltd.
Nov. 28, 1919.

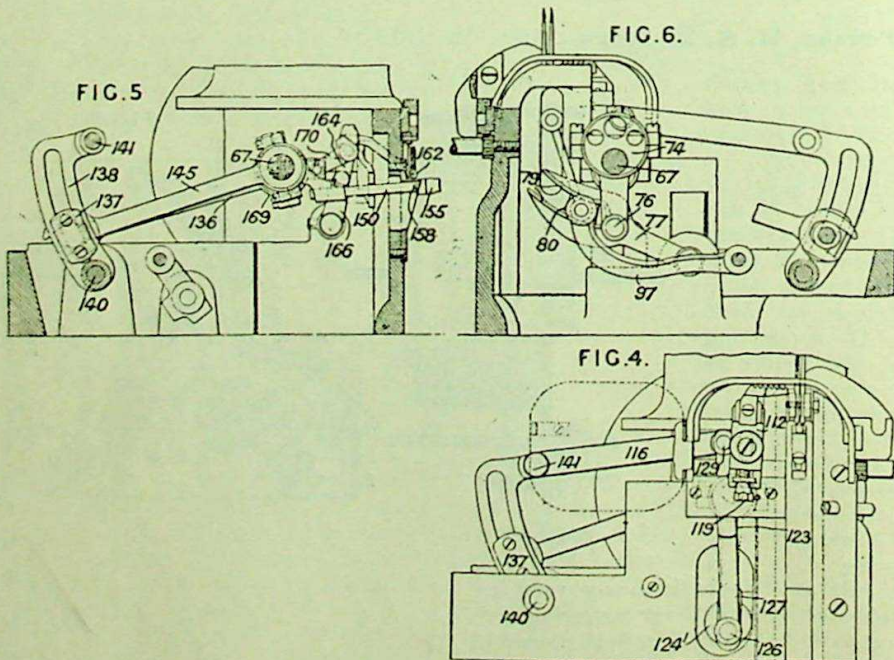
Sewing - machines; perforating - devices.—Relates to machine tools of the class in which two or more operations are performed in automatic sequence at the same locality in the work



piece but at different

locations in the machine, and automatically repeated at a series of regularly spaced localities the desired locus of which is a function of a contour of a workpiece of non-uniform curvature; and consists in means whereby the position relative to the machine of a machine part for effecting an initial operation is determined automatically by the position relative to the machine of that portion of the work-piece then to be operated on, in order that subsequent automatic movement of the work-piece shall result in presentation of a predetermined point at said position in a definite position in the machine for the subsequent operation which is then performed at that point. The invention is shown applied to the loose nailing machine described in Specification 1494/93, [Class 89, Nails &c.]. The swinging head carries a driver bar 1* and a vertical pivot 12. The awl 1 is carried by a bar 2 universally mounted so that it can move laterally and its lower guide is carried by a lever system 10, 14 pivoted at 12. A cam roll 16 on the lever system co-operates with a slot 17 in a fixed plate 18, the slot having a narrow end so that at the end of the feeding movement of the awl the work will be in correct nail-receiving position, and a wide mouth to allow on the return movement of the awl, an edge gauge 15, adjustable on the member 14, to follow the contour of the work under the pull of a spring 20. A pivoted plate 21 has a parallel-sided cam slot 24 may be brought under the slot 17 to restrain the awl from movement transverse to the line of feed. The machine will then operate in the usual manner, and the work must then be held up to the gauge 15. The roll 16 is eccentrically mounted, for adjustment.

160,920. Fairweather, W., (Singer Manufacturing Co.). Dec. 29, 1919.

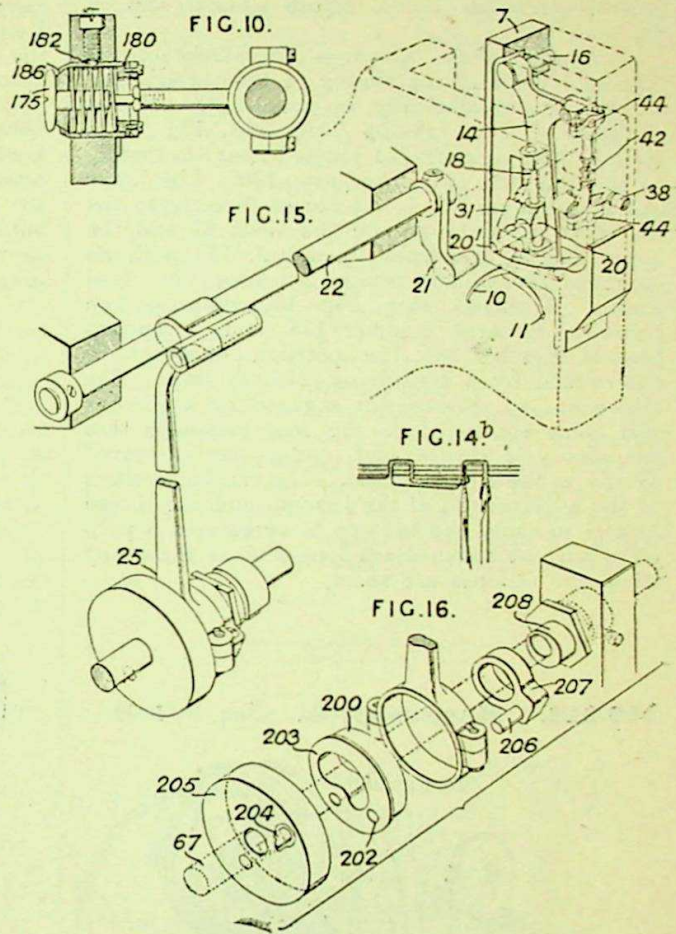


Straw-plait sewing-machines.—Relates to a machine forming stitches as shown in Fig. 14^b. The loopers are mounted on the presser bar and on separate axes at right-angles one to the other. Two needles, one eyed and one barbed, enter the work from below and are actuated by a variable stroke mechanism controlled by the position of the presser-foot. The mechanism is such that no lock is necessary to prevent alteration of the stroke of the needles due to any resistance the needles may experience in penetrating the work, and such resistance serves to increase the pressure of the presser on the work.

Needles, driving.—An eccentric 74 on a continuously rotating shaft 67 oscillates a lever 77 which has an arcuate slot 79 embracing a slide block 80 linked to the needle bar. The position of the block 80 in the slot is determined by the thickness of the work by means of a link 97 connected by linkages, with the presser bar. When the needles enter the work, the slot is inclined as shown, and the resistance of the work to the needles tends to move the block towards the pivot 76 with a corresponding downward movement of the presser bar, which is resisted by the work underneath it.

Loop-stitching.—Loopers 10, 11, Fig. 15, are adjustably secured upon carriers 31, 14 respectively, which oscillate about pivots 38, 16 in the presser-bar 7. The carrier 14 is oscillated from a shaft 22 by means of an arm 21 and a pin 20¹ having a head 20 slidingly engaging a rod 18 on the carrier. The sliding connection 20, 18 permits vertical movement of the presser, as the thickness of the work varies, without materially altering the action of the loopers. The carrier 31 is oscillated from the carrier 14 by means of a pitman 42 of adjustable length and with ball-joints 44. The shaft 22 is oscillated by means of a compound eccentric 25, the eccentricity of which varies in each revolution. The parts are shown separated in Fig. 16. The eccentric block 200 is pivoted upon a pin 204 on a disc 205 secured to the shaft 67, and has an elongated hole 203 through which the shaft passes. A crank 207 is mounted upon a fixed eccentric sleeve 208 and is rotated with the shaft because a pin 206 upon it enters a hole 202 in the eccentric block 200. In the rotation the distance of the pin 206 from the centre of the shaft varies and causes the block 200 to swing about the pin 204, and thereby the eccentricity of the block 200 is varied.

Presser-bar lifting devices.—To permit the lifting of the presser foot incidental to the introduction and handling of the work, the linkages connecting it to the link 97, Fig. 6, include a telescopic arm which during stitching is held from extension by a spiral spring. The movement of the link 97 is limited by suitable stops, and in lifting the presser by the usual lifting lever after the link 97 has moved the full amount permitted by stops, further movement of the lifting lever



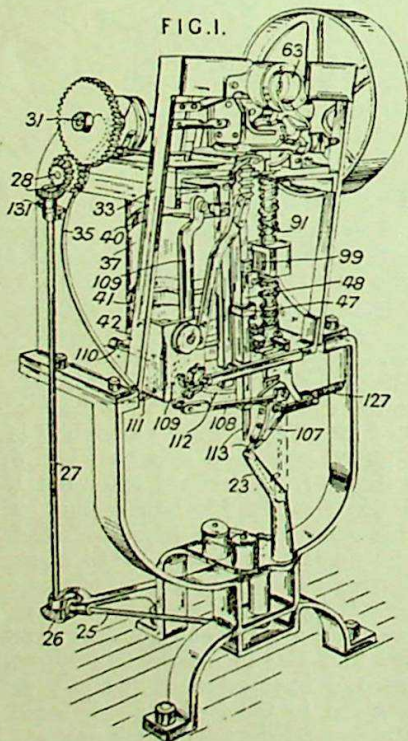
extends the telescopic connection. An additional lifting lever with a ratchet detent is conveniently mounted on the head of the machine to enable the operator while stitching to turn corners conveniently.

Feed by dogs.—The feed-rock shaft 140, Figs. 4 and 5, is oscillated by an eccentric 169 and rod 136, adjustably connected to a slotted arm 138 fast on the shaft and to which the feed-bar 116 is pivoted at 141. The slide block 137 is engaged by the forked end of an arm 145, Fig. 5, pivoted on the shaft 67. A forward extension 150 of the arm carries a handle 155 having pins 158, which, when the arm has been adjusted, enter sockets and lock the arm in place. Vertical movements are imparted to the feed-dog by means of an upright link 127 pivoted to the feed-bar at 129 and to an eccentric rod 123 at 126. The pivot pin 126 is guided in a slot in a revolvably adjustable disc 124¹ and the inclination of the slot determines the lift given to the feed-dog. The pin 129 extends through a long boss which projects laterally from the feed bar, and to accommodate this the eccentric rod 123 and the link 127 are cranked, the off-set upper part of the link 127 being guided by a plate. The feed-dog is secured in a block 112 adjustable upon the feed-bar, and fine adjustment of its position is effected by a screw 109. The feeding surface is gouged out in the line of

the seam and has two prongs standing above the general serrations which insure against slip of the work.

Governing needle thread.—The stroke of the take-up lever and the timing of the thread lock are varied automatically as the length of feed is varied. The take-up arm 162, Fig. 5, is integral with a lever 164 pivoted near its middle on the free end of a lever arm 166. The lower end of the lever 164 is connected directly to the rod of an eccentric-rod on the shaft 67 and the upper end is connected by a link 170 with an eccentric sheave 169 which actuates the feed shaft. A thread lock, Fig. 10, comprises an eccentric actuated member 175 and a spring-pressed member 186, the position of which is determined by a containing sleeve 180. The sleeve has an oblique slot engaged by a pin 182 and is so connected to the feed regulator that the sleeve is turned and, consequently, moved axially as the feed is raised. The combined effect of the adjustments of the take-up and the thread lock is to cause the take-up to operate as a pull-off when the stitches are long and as a take-up when the stitches are short.

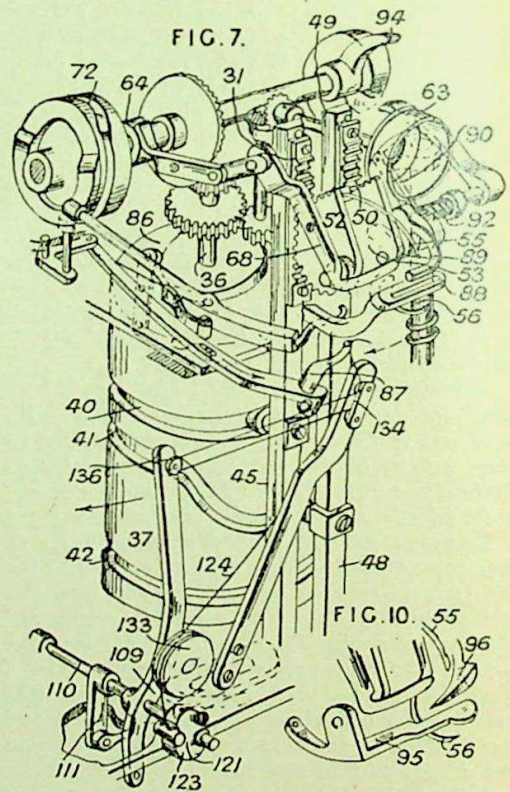
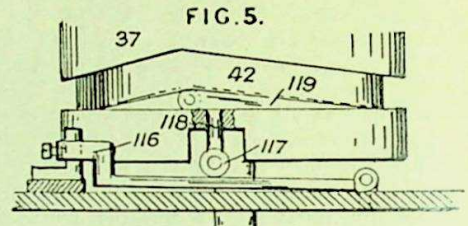
160,948. **Kagansky, A.** Jan. 3, 1920.



Boot-sole sewing-machines.—Means is provided to enable the machine to perform at will any of the three operations of direct sewing, i.e. sewing a sole directly to an upper, outsole-sewing, and turnshoe-sewing. For direct sewing a chain stitch is employed while for outsole and turnshoe

sewing a lock-stitch is used. The main shaft 31 carried in brackets 35 drives through bevel wheels a shaft 36 mounted in the frame 33 and carrying the drum 37 having three cam grooves 40, 41, 42 operating various of the stitch-forming devices.

Rotary horns; chain-stitching; feed by presser-foot.—For direct sewing the shoe is supported on a rotary horn 23 within which is mounted a whirl rotated through shafts 25, 27 and bevel wheels 26, 28 by the shaft 31 to lay the thread in the barb of a needle 113 carried by a needle bar 48 on which is secured by a bracket 47 a roller running in the cam groove 42, whereby the needle



bar is reciprocated. A combined presser-foot and feeder 107 is slidably carried by a rod 91 and is actuated to feed the work by a cam 112 on the shaft 36 through connections including the rock shaft 110, arms 109, 111 and link 108. The foot 107 is lifted at the end of its feed movement to allow the spring 127 to effect its return by a cam on the shaft 31 which actuates a vertical rod connected to the bar 91. In order that the needle shall always penetrate the work from a distance determined by the thickness of the work, the foot 107 carries an extension attached to a plate 116

hinged to the frame, and a roller 117, carried on a stem 118, Fig. 5, secured to a two-part ramp 119 which is mounted in the cam groove 42, bears upon the plate 116 to set the ramp and so vary the needle bar motion.

Outsole-sewing; turnshoe; lock-stitching by shuttles; needle-driving mechanism; disconnecting.—For outsole and pump sole sewing, the whirl in the horn 23 and the feed foot 107 are rendered idle by removing a collar 131 to disconnect the bevel gear 28 and by disconnecting the link 108 respectively, and the rotary shuttle 63 driven through a countershaft and bevel gearing from the shaft 36 is used in conjunction with the needle 55 and awl 56, Fig. 7, mounted in the toothed sectors 52 and 53 respectively. The needle 55 is driven by a rack 49 on a bar 45 carrying a roller which is inserted in the cam groove 40, while the awl 56 is driven by a rack 50 on the bar 48 carrying the needle 113, the roller on the bar 48 being for this purpose removed by the groove 42 and inserted in the groove 41. The thread 124 is led from the horn 23 through an intermittently actuated locking device 121, 123 round the stationary pulleys 133, 134 and the pulley 136 on the take-up arm 109 to the looper 87 which is

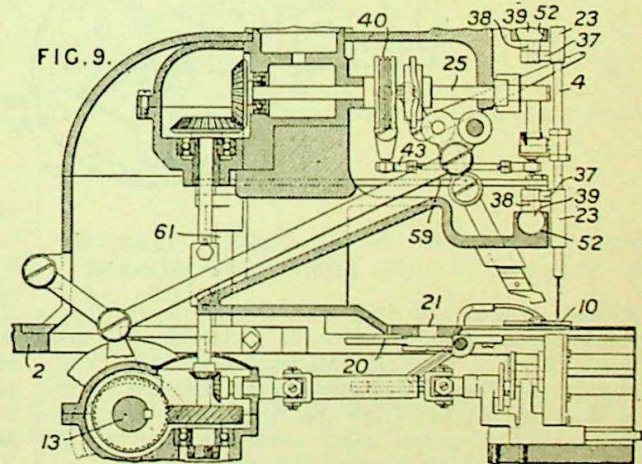
actuated from cams 72, 86 to lay the thread in the hook of the needle 55. A member 68 actuated by a cam 64 spreads the thread loop for the shuttle 63. For outsole sewing the fixed slotted work rest 88 is used and the foot 89 is raised and lowered intermittently by the arm 90 connected to the rod 91 and moved sideways to feed the work by the threaded bolt 92, actuated by the cam 94. For turnshoe sewing the rest 88 and foot 89 are replaced by the yielding work rest 95 and the foot 96, Fig. 10.

Frames.—To facilitate the operation of turnshoe sewing the frame 33 carrying the shaft 36 and drum 37 and the lock-stitch forming devices may be tilted forwardly about the shaft 31, by a winch carried in the fixed bracket 35 and a chain attached to the movable frame 33.

Presser-bars with periodic control.—The tension bar 91 is threaded through a nut 99 housed in a box surrounding the bar, thereby allowing adjustment of the bar vertically. The edge of the nut is serrated and is engaged by the end of a lever actuated by a cam on the shaft 31 to lock the nut to the bar once in each stitch-forming cycle.

161,076. *Emrie, H.*, (Reece Button Hole Machine Co.). April 26, 1920.

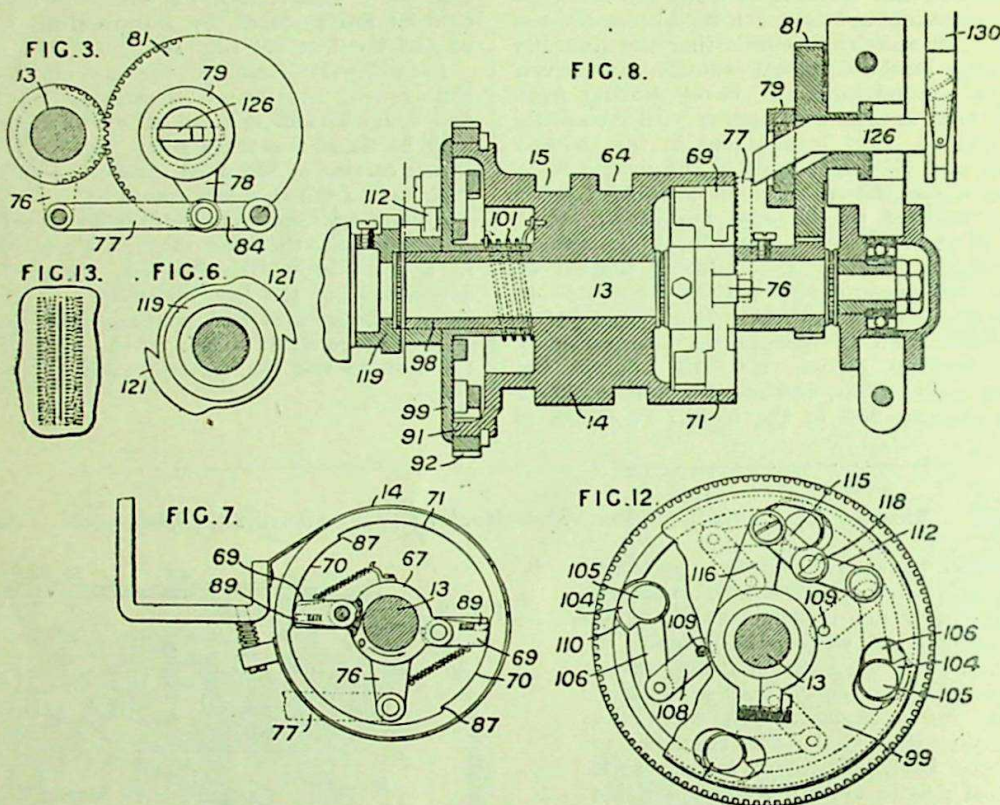
Buttonhole sewing-machines; needles, vibrating laterally.—The frame in which the needle bar reciprocates is oscillated to give the needle its jogging movements in sewing the sides of a straight buttonhole and is additionally moved bodily at right-angles to the buttonhole slit, when the ends of the buttonhole are reached, to produce the barring stitches and to shift the field of needle vibration from one side of the buttonhole to the other, forming the buttonhole shown in Fig. 13. The clamp 10 is moved to feed the work longitudinally of the buttonhole by a bell-crank lever actuated by a cam-groove 15 in a drum 14 and connected adjustably, to deal with buttonholes of various lengths, to the link 20 pivoted at 21 to the clamp. The needle bar 4 is reciprocated in bearings 23 of a frame which has arms 37 and is vibrated about pivots 38 through the link 43 by a switch cam 40 on the shaft 25 driven through bevel-gearing from the shaft 13. The link 43 is adjustably connected to the frame to vary the amplitude of needle vibration. The pivots 38 are carried in blocks 39 which are slid in ways 52 for the barring operation through toggle connections with a vertical shaft which is rocked by a cam-groove 64 in the drum 14 through the rock-shaft 61 and link 59. The drum 14 is loosely mounted on the shaft 13, and is given a step-by-step rotation to feed the work for sewing the side of the buttonhole and is continuously rotated at a higher speed for the barring operation. The cams 15, 64 are so designed that during the barring operation the feed is suspended and vice versa. For intermittently rotating the drum 14 a sleeve 67, Fig.



7, is loosely mounted on the shaft 13 and carries two friction feed-dogs 69 which engage portions 70 of a flange 71 on the drum to rotate the drum in one direction. The sleeve 67 carries an arm 76, Fig. 3, and is oscillated through the arm 78 and toggle 77, 84 by an eccentric 79 attached to the wheel 81 which is driven from the shaft 13. To vary the spacing of the side stitches while the machine is running, the throw of the eccentric 79 is varied by shifting axially the bent rod 126 by means of the handle 130, Fig. 8. As soon as the dogs 69 reach the ends of the portions 70 and the intermittent rotation of the drum ceases, the continuous rotation commences and the cam 64 acts to give the needle its barring movements, the spring plungers 89 co-operating with shoulders 87 to rotate the drum positively to such a posi-

tion that the barring movement occurs when the needle is out of the work. The drum is continuously rotated by the ring gear 92, driven through speed-reduction gearing from the shaft 13. Mounted loosely on the hub 98 of the drum 14 is a disc 99 connected to the drum through a spring 101 and carrying pins 109, Fig. 12, on which swing links 108 connected to arms 106 rigid

with cams 104, which are pivoted at 105 to the flange 91 of the drum. The spring 101 tends to turn the disc 99 and drum relatively so that the cams 104 are held in clutching engagement with the ring 92, through slots 110 in the flange 91, to drive the drum. The cams 104 are disengaged from the ring 92 by the straightening of toggle links 112, 115, connected respectively to the disc



99 and an arm 116 rigid with the drum, through the engagement of a projection 118 with the portions 121, Fig. 6, of a stationary cam 119. The angular position of this cam is such that the drum is thus de-clutched from the ring 92 when the buttonhole sides are being sewn and barring is suspended.

Frames. — To expose the internal mechanism, the base-plate 2 may be swung upwards about a pivot coaxial with the shaft 13, whereby such tilting of the base-plate may be done without disconnecting the driving belt from its pulley on the shaft 13.

161,487. Fairweather, W., (Singer Manufacturing Co.). July 24, 1920.

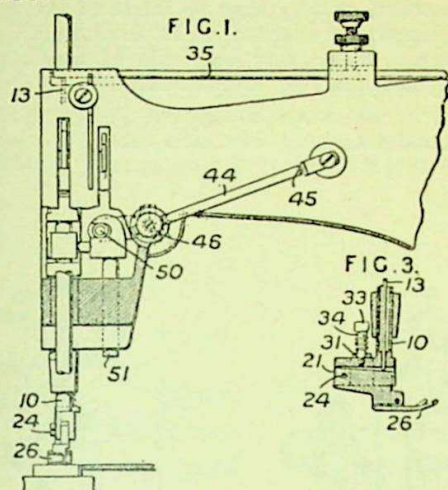
Presser-feet; presser-bars.—A presser-foot 26 is pivotally attached at 24 to a presser-bar 10 and is pressed on to the work independently of the presser-bar by means of a rod 13 passing centrally down the presser-bar and a lever spring 35 bearing on the top of the rod. The presser-bar is supported from the presser-foot by means of a spring 34 sufficiently strong to carry the weight of the presser-bar and inserted between a bent-over finger 31 on the presser-foot and the head

of a pin 33 screwed into the arm 21 of the presser bar. In an alternative construction the presser-foot is slidingly mounted on the presser-bar. The presser may be lifted by the usual lever acting on the presser-bar.

Governing needle thread.—The amount of thread pulled off for each stitch in a chain-stitch machine is varied in accordance with the thickness of the work by means of a thread eye 45 at the end of a lever 44 pivoted at 46 and having a pin-and-slot connection 50 with a bar 51 rigidly secured to the presser-bar.

(For Figures see next page.)

161,487.

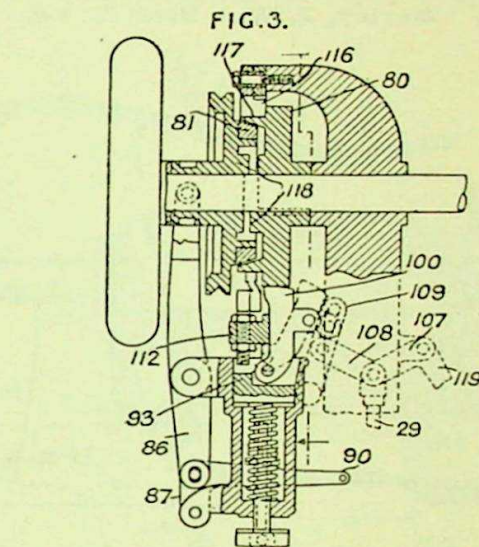
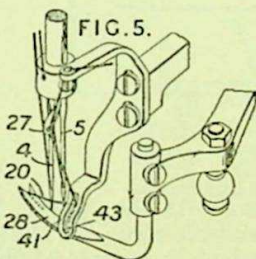


the cam comes up to it. Thereafter in the continued rotation of the cam, the follower and the plunger 93 are depressed and, by connections 90, 87 and 86, the clutch members 81, 117 are separated. A band brake 116 surrounding the member 117 is at the same time tightened by means of toggle levers pivoted at a part 112 of

161,874. **Thompson, W. P.,** (Union Special Machine Co.). June 24, 1920.

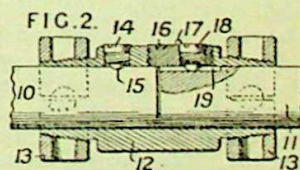
Sewing-machines; surface threads, attaching.—

A surface thread 20 is interlaced between the stitches formed by two or more needles 4, 5, by means of an oscillating thread engaging hook 28, a guide eye 27 carried by the needle-bar and a fixed cam-like guiding surface 41. As the thread loop is extended towards the left, the surface 41 causes the thread to slip backwards and thereby the upper arm of the thread loop is caused to lie between the needles. The downward movement of the guide eye 27 in the formation of the next stitches brings the surface thread 20 forwardly along the surface 41 into position to be engaged by the thread-hook. In the form shown the surface 41 forms one wall of a slot 43 but the thread does not engage the other wall and it may be omitted.



the plunger 93 and the machine is brought to rest with the follower 100 on the highest part of the cam. Dog clutch teeth 118 prevent slipping in the clutch when the clutch is closed. The toggle arm 107 is integral with a lever arm 119 which has a connection with the thread tension release gear.

162,211. **Willcox & Gibbs Sewing Machine Co., Ltd.,** (Merritt, A. A.). June 14, 1920.



161,974. **Reece Shoe Machinery Co.,** (Assignees of Schoenky, A. R.). July 28, 1919, [Convention date].

Sewing-machines; starting and stopping.—The positive stopping clutch on the shaft of a boot-stitcher includes a cone clutch 81, 117, a positive stop cam 80 and a follower 100 which is pivoted upon a spring-pressed plunger 93. During running, the follower 100 is in the dotted-line position. When the pedal rod 29 is free to rise, toggles 107, 108 and a lever 109 are used to urge the follower into the full-line position and it moves into that position when the low part of

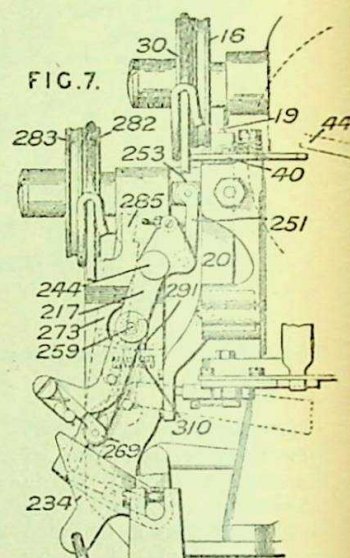
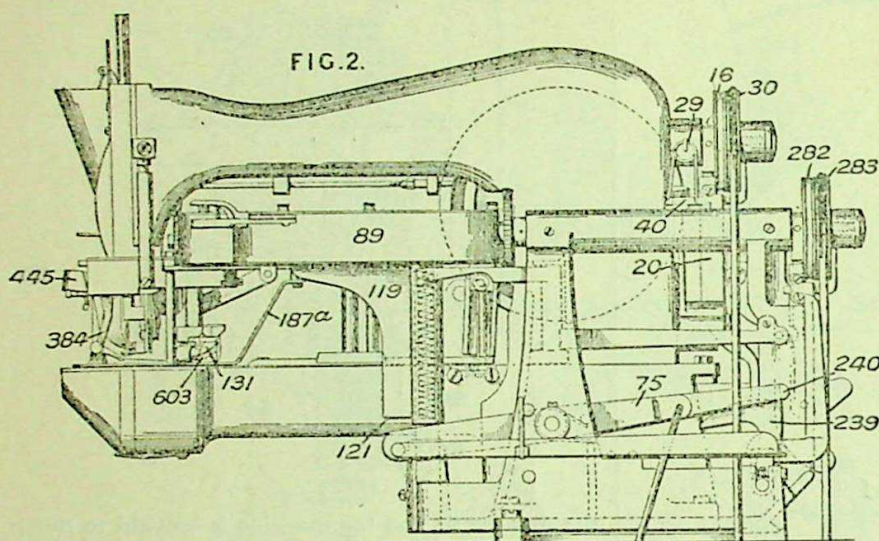
Sewing-machines; upper and lower shafts, connecting.—In sewing-machines in which the main driving-shaft is in two parts, one of which drives the loopers &c. and the other the needles &c., adjustable coupling-means are provided for timing the two trains of mechanism. A sleeve 12 is secured to the shafts 10, 11 by friction-grip devices 13, by a set-screw 14 engaging a seat 15, and by a set-screw 18, eccentrically mounted in a revoluble plug 16, engaging a slot 19. Rotation of the plug 16 by means of pins &c. 17 relatively rotates the shafts, which are locked in adjusted position by tightening the parts 13, 18. A scale is provided on the periphery of the plug 16.

162,450. Jones, E. H. R. Feb. 19, 1920.
Drawings to Specification.

Darning.—Stockings and socks are repaired by being patched with pieces cut from old stockings. For this purpose nests of trees of suitable size are

provided. The trees may be hollow, fitting one in the other, or they may be made of two or more parts hinged or adapted to be temporarily joined together. They may be made of wood, papier-maché, celluloid, or aluminium.

162,505. Darley, J. W. March 25, 1920.



Button-attaching machines.—In a machine in which a button is stitched to a garment so as to be separated therefrom by a neck of thread, mechanism is provided which winds another thread around the said neck and ties the winding thread ends together in a reef knot. The ends are then cut close to the knot, leaving the supply end of the thread held by the knotting device for the next operation. The sewing shaft carries fast and loose pulleys 16, 30, while the winding, knot-tying, and thread-cutting devices are operated from a shaft 312 by grooves in a cam disc 144, Fig. 3, mounted in a cam case 89 which supports the said devices. The button chuck, Fig. 5, comprises three mutually-adjustable jaws 150, 151, 152 pivoted to a carrier 148 which is adjustably secured to a screw 144, whereby the button may be raised or lowered to vary the length of the neck of attaching thread. The carrier 148 is intermittently jogged to place the holes in the button alternately in line with the descending needle. Supported by a bracket of the cam case is a bevel wheel 366 which surrounds the button chuck and to which is pivoted tangentially of the wheel the winding arm 384 supplied with thread from the bobbin 369 carried by the wheel 366. The wheel 366 is rotated by a wheel 345 on a shaft 105, Fig. 13, which is driven either by the loose bevel wheel 348 or by the shaft 104 geared to the shaft 312. A worm 342 on the shaft 104 drives the cam disc 144, a groove in which actuates the lever 517 having teeth mesh-

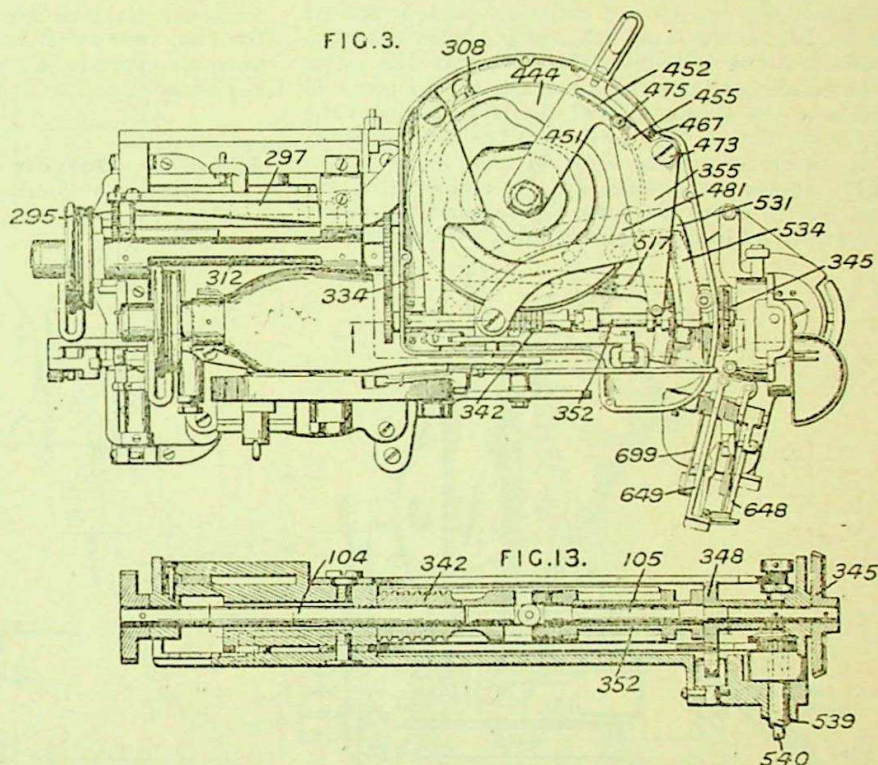
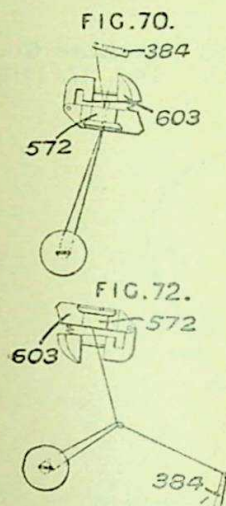
ing with the wheel 348. Rotating with and slidable along the shaft 105 is a clutch sleeve 352 which is moved axially by a lever 355 pivoted at 473 and urged by a spring 467 in a direction to engage the sleeve with the wheel 348. The lever 355 carries a pin 475 which passes through a slot 452 in a radially-movable arm 451, and engages a cam piece 481 on the disc 444 which also contacts with a pin 455 in the arm 451. Thus when the cam 481 engages a pin 455, the arm 451 is moved outwardly swinging the lever 355 against the action of spring 467 to clutch together shafts 104 and 105, and the winder gear 366 is rotated rapidly until the cam 481 passes the pin 475. The number of turns of winder thread may be varied by varying the distance between the pins 455 and 475. After the winding operation, lever 517 controls the winder gear and rotates the wheel 366 slowly half a revolution in a reverse direction while at the same time the arm 384 is swung outwardly, so that the thread is laid in the knotting devices which are located just outside the circle described by the winding arm 384. The outward swing of the arm 384 is caused by descent of a lever 445 which is actuated by a cam-operated lever 334 and engages a roller 388 on a second arm integral with the arm 384, Fig. 5.

Knot-tying devices.—The knotter 603, Figs. 43 and 48, is carried on the end of a sleeve 539 and is bored internally for a twister 572 having thread-clamping jaws 636, 637, Fig. 49. The sleeve 539 carries gear teeth 554 and is oscillated by a cam-

actuated lever 531, Fig. 3, while the twister 572 is rotated through bevel gearing by a shaft 540 which carries gear teeth 548 engaged by a cam-actuated lever 534. After the arm 384 has laid the thread in the knotter, as shown in Fig. 70, the twister 572 rotates to twist the thread-ends together and the arm 384 returns while at the same time the knotter is rocked through 180° to

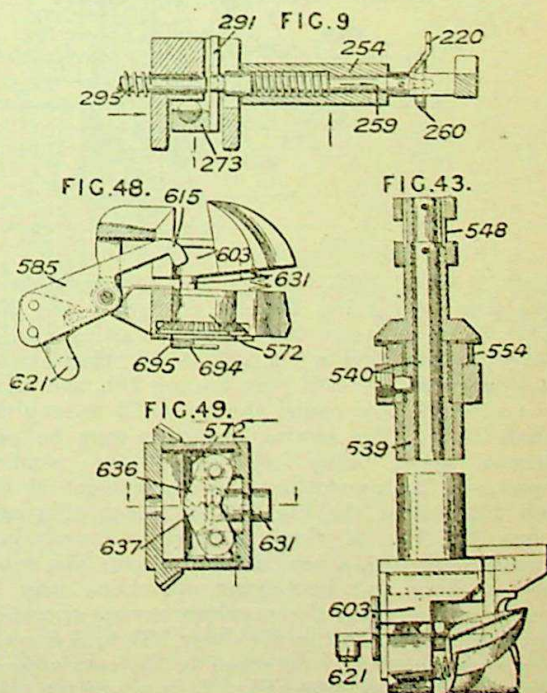
allow the thread-twist to slip down the thread, as shown in Fig. 72, return movement of the knotter and outward movement of the arm 384 serving to tighten the knot against the button thread-neck, the whole operation being then repeated to form a reef-knot.

Sewing-machines; thread-cutters and thread-end holders.—After the knot has been tied, the

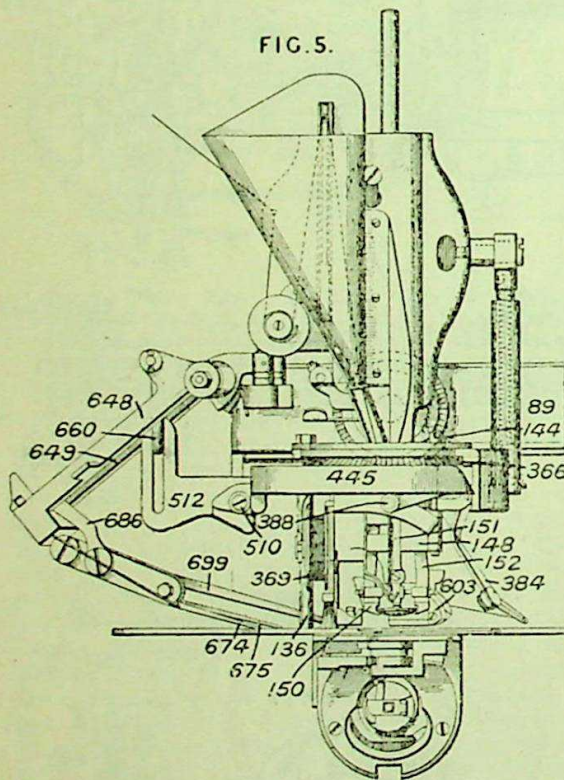


arm 384 again returns to the knotting-devices and the thread ends are cut close to the knot by cutters 674, 675, Fig. 5, carried by a lever 648 which is spring-pressed toward outward position and is advanced, through connections comprising the link 660 and boss 512, by the lever 445, the roller 510 on the boss 512 engaging the lever 686 to close the cutters as they advance. Connected by a latch to the lever 648 to be advanced thereby is a lever 649 to which is pivoted a lever 699 the end of which is provided with hooks. In the advance of levers 648, 649 the latch is tripped by the post 136 and the lever 649 is swung rapidly back to outward position by a spring, the hooks on the lever 699 engaging the thread-ends and driving them against knife-edges 694, 695, Fig. 48, on the knotter 603 to cut the threads from the knotter. During the withdrawal of the lever 699 a cam thereon contacts with the roll 621 on the lever 585 to cause its end 615 to engage the pin 631, Fig. 49, of the twister to open the jaws 636, 637 and release the thread-end held thereby, while one of the hooks on the lever 699 draws the other thread-end into the jaws to be held throughout the next operation.

Starting and stopping gear.—The rotation of the sewing shaft and of shaft 312 is controlled by a



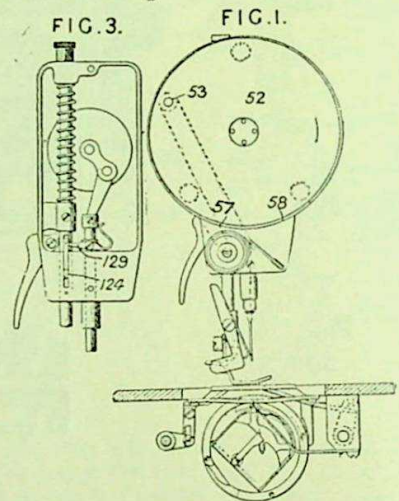
lever 217 pivoted at 244, Fig. 7, to the frame. An arm 251 on the lever carries a roller 253 which presses against the lever 20 to remove its end 19 from the stop-cam on the sewing shaft and shift the driving-belt, when the lever 217 is swung by the action of the treadle-operated lever 234 on the roller 269 carried by the lever 217. A detent 40 holds the stop-piece 19 in this position. On the lever 217 is a boss 254 in which is a spring-pressed pin 259, Fig. 9, the end of which engages behind a lug 291 on the lever 273 which carries the stop-piece 285 and belt-shifter for the shaft 312. After one rotation of the sewing shaft, a cam piece 44 releases the detent 40 and the lever 20 is swung by a spring 29, Fig. 2, to stop the sewing shaft, this movement of the lever 20 swinging the lever 217 counter-clockwise, Fig. 7, and causing the pin 259 to swing the lever 273 against the action of a spring 310 to withdraw the stop-piece 285 and



start the shaft 312. At the end of a rotation of the disc 444, a lug thereon engages a pin 308, Fig. 3, on a lever 297, thereby swinging this lever and causing a pin 295 at its other end to disengage the pin 259 from the lug 291, and allow the spring 310 to swing the lever 273 to stop the shaft 312. The sewing operation may be performed alone, being followed by the winding operation, by preventing the engagement of the pin 259 behind the lug 291 by means of a cam piece 220, Fig. 9, which is moved manually into engagement with a head 260 on the pin 259, while the winding and knot-tying operations may be performed without the previous sewing operation by manually swinging the lever 273 to disengage the stop-piece 285. Attached to the cam case 89 by an extension 187^a, Fig. 2, is a presser plate

131 and in order to allow insertion and removal of work the cam case and its attached parts may be lifted bodily by a treadle-operated lever 57 one end of which engages a part 121 of a bracket 119 on the cam case. Mounted on a sleeve carrying the starting lever 234 is an arm 239 which passes beneath the bent end 240 of the lever 75 when the starting lever is operated, thereby preventing lifting the cam case and presser plate while the machine is running. Conversely, while the cam case is in raised position, the end 240 prevents movement of the arm 239 and consequently of the lever 234 to start the machine.

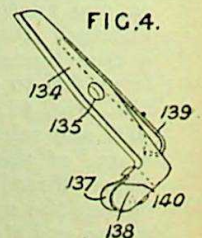
162,662. Detroit Sewing Machine Co.,
(Assignees of Smith, A. D.). Dec. 27, 1915,
[Convention date].



Sewing-machines; governing needle thread.—A rotary take-up comprises a pair of discs 52, Fig. 1, secured together by a thread-engaging pin 53 and enclosed by a flanged cover plate. The flange of the cover plate is cut away at 57, 58 for the passage of the thread. A thread tension of a usual construction is combined with a cam-plate 124, Fig. 3, which is depressed by the presser when the latter is raised and thereby the tension is released. When the presser is lowered again, the cam-plate remains in its lower position until raised by a lever 129 which is struck by the needle-bar near the lowest point in its path.

162,663. Detroit Sewing Machine Co.,
(Assignees of Smith, A. D.). Dec. 27, 1915, [Convention date].

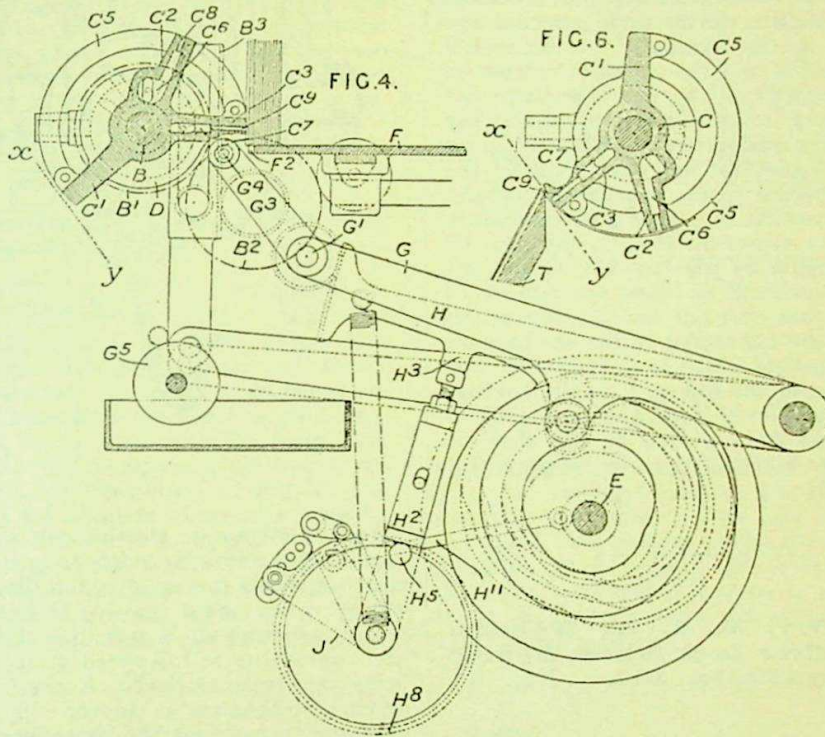
Sewing-machines; thread-cutters and thread-end holders.—A thread-end holder is pivoted at 135 upon the presser-bar. When the latter is lifted the upper end 134 of the holder engages with the machine head and the device is turned in a counter-clockwise direction. A spring



ear 137 is thereby forced up on to a part of the presser-foot and causes the gripping of the thread between the parts 137, 138. On the next descent of the needle after the presser is lowered again,

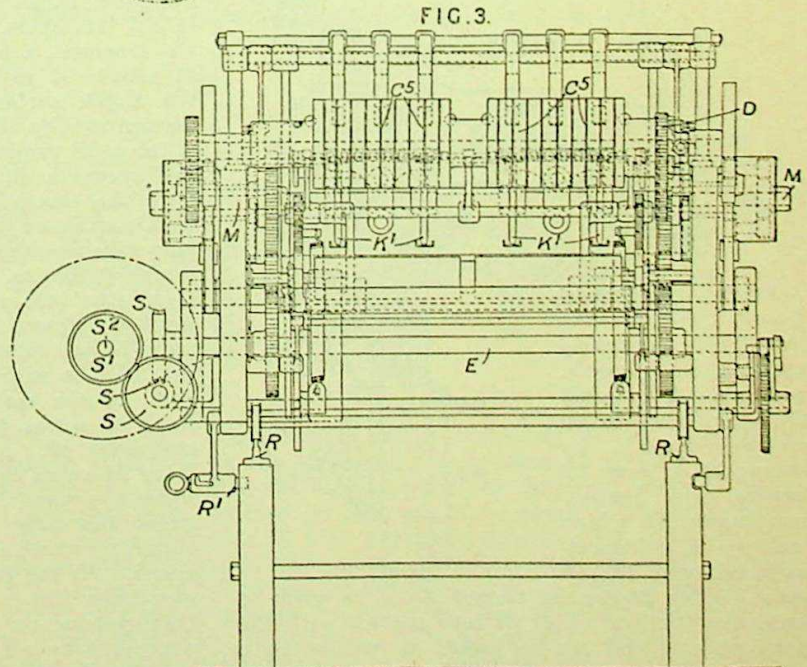
the needle-bar impacts upon a spring 139 and forces the thread - end holder out of engagement with the presser foot, and the thread is released. A thread-cutting edge 140 is provided.

162,806. **Murray, J.** Feb. 6, 1920.



Book-stitching machines.

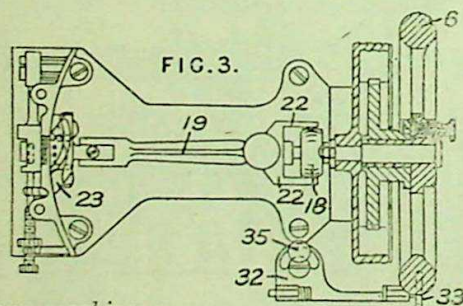
—Signatures are fed automatically to a book-sewing machine of the kind in which the signatures forming a book are presented successively to the sewing device by means of a presenting bar or frame. The frame carrying the feeding-devices together with an associated glueing apparatus is fitted as an attachment to the sewing-machine and is mounted on rails R, Fig. 3, to which it is secured by a spring-controlled pin R¹. This frame is fitted with a shaft E driven from the shaft S² of the sewing machine by means of spur and worm gearing S, S¹, and the feeding and glueing devices are operated from the shaft E. Two piles of signatures are dealt with in the machine, by similar mechanism comprising two sets of conveyor chains on sprockets K¹, Fig. 3, which are driven intermittently by mechanism controlled



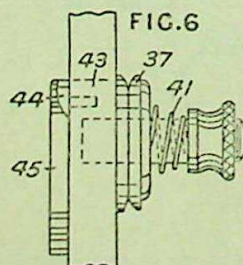
by the position of the front signature. The signatures are placed on their back edges and are guided by adjustable side guides and pass from

the conveyor bands to a table F, Fig. 4, which is adjustable longitudinally to vary the opening F² through which the front signature is drawn by a suction separator C³. The separating device comprises a skeleton cylinder with three arms C¹, C², C³ and actuate web parts C⁵, the arms C³, C² being formed with orifices C⁸, C⁹ which are connected to passages C⁶, C⁷, and by means of an oscillating valve D these passages may connect the orifices to a suction device or to atmosphere. As shown in Fig. 4, the orifices C⁹ are connected to the suction device and the cylinder rotates in a clockwise direction to separate the foremost signature, and carry it towards the presenting bar T. Prior to this a reciprocating roller G⁴ glues the back of the signature, and subsequently the ports C⁸ are connected to the suction device and the arm C² thus assists in carrying the signature to the bar T. As shown in Fig. 6, the arm C³ has carried the signature past the bar T, and the cylinder is then reversed to cause the outside of the signature to pass over the bar T, after which the ports C⁸, C⁹ are connected to the atmosphere to release the signature which is moved by the bar T in the direction of the line *x, y* to the sewing-machine. The cylinder C is carried by a shaft B which is oscillated from a cam on the shaft E which reciprocates a rack B³ geared by gears B², B¹ to the shaft B.

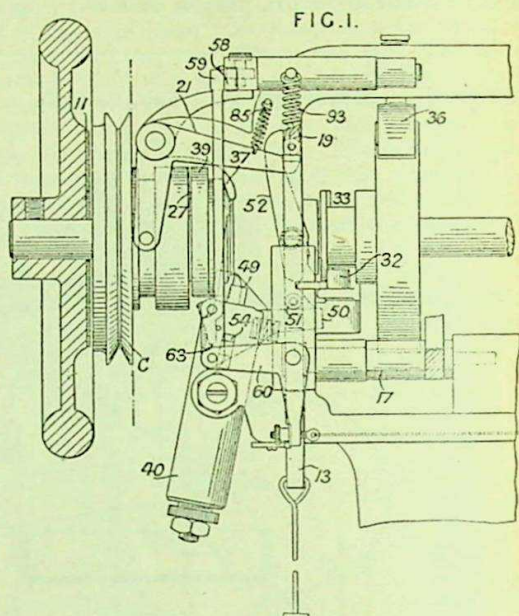
163,065. Barry, H. A. L., Wakelin, A. J., and Silver Lock Stitch Sewing Machine Syndicate, Ltd. Nov. 14, 1919.



Sewing - machines; lock-stitching by shuttles; governing needle thread; spools, winding.—A shuttle 23 is oscillated in an arcuate path by means of a lever 19 having two depending fingers 22 which embrace a spherical-surfaced cam 18. A spool-winder 32 can be turned about its pivot to bring the friction wheel 33 into contact with the hand-wheel 6 and can be locked in position by a screw 35. A presser-lifter 45 has a cam surface 44 by which, when the presser is raised, a pin 43 is pushed endwise and releases tension discs 37 from the normal pressure of a spring 41.



163,132. Fairweather, W. C., (*Hamel Shoe Machinery Co.*). Feb. 16, 1920.



Sewing-machines; starting and stopping gear.—A sewing-machine is equipped with a friction clutch drive by means of which the working speed can be varied and a positive clutch which, in the stopping operation, is put into action and brings the machine up to full speed prior to the machine being positively stopped. A pivot in the needle driving mechanism is moved in the stopping operation to prevent the threading of the needle in the last cycle. During the normal running of the machine, a treadle actuated rod 13 by means of a bowl 19 presses upon a lever 21 and forces the clutch surfaces 11 together with a pressure determined by the desired speed of the machine. A latch 52 projects over the end of the lever 21 and prevents an upward movement sufficient to open the clutch 11 and also engages an arm 50 of a stop lever 40 and holds it from action. To stop the machine the treadle is released and a spring 93 begins to raise the rod 13. A latch 32 then slips into a notch in the rod and holds it until withdrawn by a cam 33 at a predetermined point in the rotation of the machine shaft. When the latch is withdrawn, the rod 13 is moved upward by the spring 93 and a bowl 51 turns the latch 52 so as to release the lever 21 and the stop-lever 40. A spring 85 thereupon turns the lever 21 so as to open the clutch 11 and also to move the part C until the end 27 positively engages the outer member 39 of a positive roll-clutch by which the machine is then driven at full speed. At the same time, the plunger 49 of the stop-lever first rides against the face cam 37 and then passing on to the periphery is momentarily depressed by a high part of it and afterward released. During the depression, an arm 54 on the plunger passes under a catch 63 and when the plunger is released by the cam and forced upward by its own spring, the arm 54, in engaging the

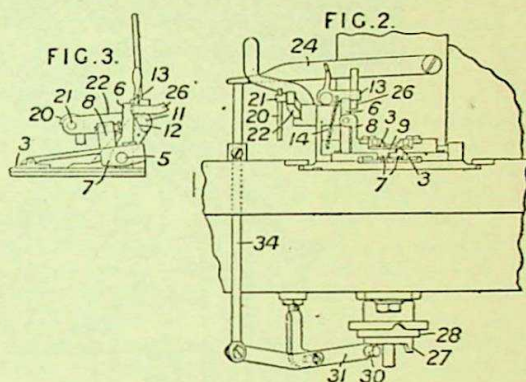
catch 63, forces a rod 59 upward with it. This rod rotates a lever 58, applies a brake 36 to stop the machine and returns the part C of the main clutch into a middle position in which it is entirely disengaged from the machine shaft.

Operative connections with other machine parts. A lever in the needle-driving mechanism is pivoted upon an eccentric part of a shaft 17. When the rod 13 rises to stop the machine, rack teeth upon it rotate the shaft 17 and the eccentric pivot and prevent the needle from moving into the threading position. The rod 59 is connected to a lever 60 by which the needle-thread is removed when the machine is stopped.

163,221. Imrie, H., (*Reece Button Hole Machine Co.*). June 17, 1920.

Button-hole sewing-machines.—A latch which holds the work-clamp closed on the work while the main feed-cam moves it from button-hole cutting position to stitching position and during the stitching operation is tripped to unclamp the work, when the stitching operation has been completed, by a cam device rigid with the main cam. Blocks 7 carrying the work-clamping feet 3 are loosely mounted on a rock-shaft 5, Fig. 3, and are rocked about the shaft to clamp the work by an arm 6 on the shaft which engages an arm 8 projecting from one of the blocks 7 which has a lip 9 overlying the other block. On starting the machine, the main feed-cam actuates a lever which, through the link 20 and pin 21, swings the

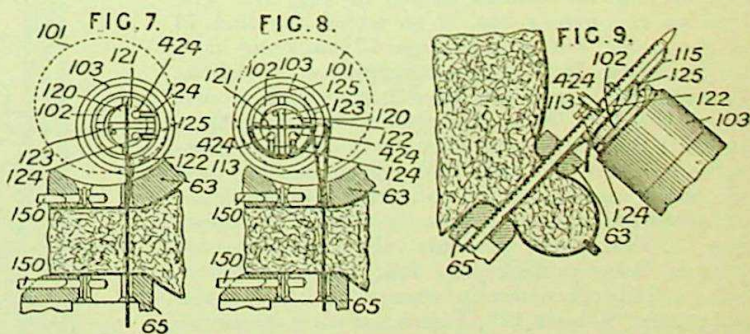
arm 22 on a rock-shaft 11 to press a cam lug 12 thereon into contact with the arm 6, thereby closing the clamp. A latch 13 pulled down by the spring 14 drops behind the arm 6 to hold the clamp closed until the stitching is completed, whereupon the latch is tripped to allow the clamp to release the work by a cam 27 carried on the hub 28 of the main feed-cam. The cam 27 engages a roller 30 on a lever 31 and swings this lever to raise, through the link 34, the lever 24



which carries an arm whose end 26 underlies the latch 13, thereby tripping the latch and unclamping the work. The cam 27 may be so positioned with respect to the main feed-cam that the latch 13 is tripped either before, during or after the work-clamp has been given its final movement from button-hole stitching to button-hole cutting position.

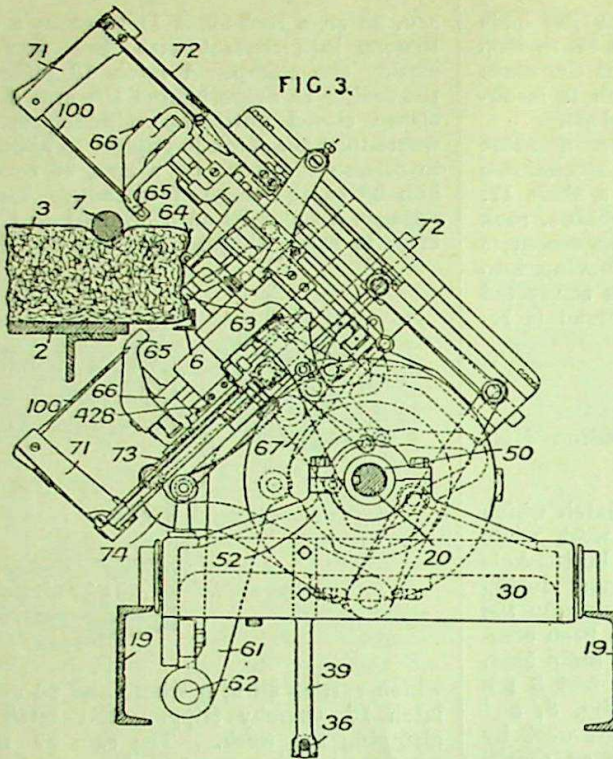
163,225. Jackson, W. J. Mellersh-, (*Rockwell & Co., Inc.*). June 28, 1920.

Sewing-machines; sewing padded edges of mattresses.—The top and bottom corners of the sides of a mattress are sewn simultaneously by duplicate stitching devices mounted on a travelling carriage which is fed step by step along the side of the mattress, each of said devices forming a seam comprising a series of independent loops of twine, the ends of which loops are knotted together and severed. The mattress 3 is clamped, with its corner against the gauge 6, on a fixed support 2 by means of a bar 7 actuated by a handle at the front of the machine. The carriage 30 carrying the stitching devices runs on ways 19 and is moved intermittently between each stitch by a chain and sprocket gear actuated by a cam on the shaft 20 which is manually clutched to a driving-pulley to start the machine. On reaching the end of its travel an arm 39 on the carriage engages a tappet on a rod 36 which acts to declutch the shaft 20 and to set the feed mechanism so that the carriage is fed in the reverse direction when the machine is again started. The stitching-devices are all operated by a cam-carrying sleeve 50, which travels with

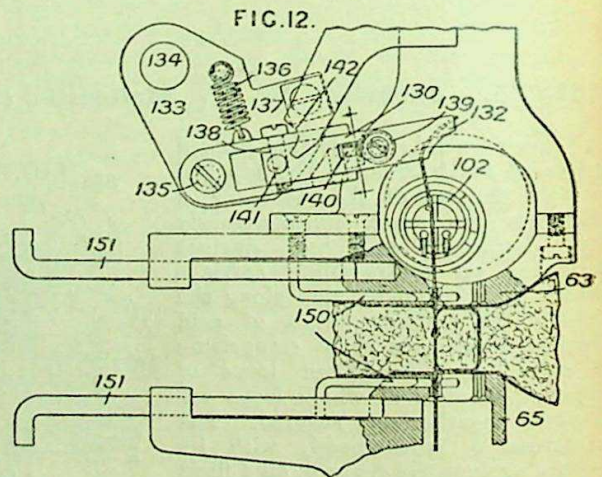
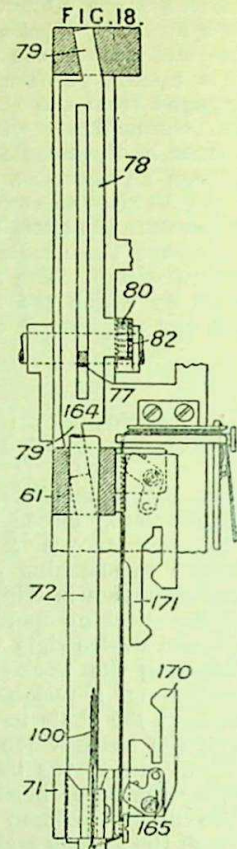


the carriage and is feathered on the shaft 20 to rotate therewith. A bracket 61 pivoted at 62 to the carriage supports the stitching devices and is rocked by the cam 52 to press the work-supports 63, 64 into engagement with the side of the mattress during the formation of each stitch. The presser-feet 65 carried on rods 66 are pressed against the mattress by a cam-actuated lever 67.

Knot-tying devices; needle guides; needles, vibrating laterally.—The stitching-devices for the upper corner are a duplicate of those for the lower corner, which comprise a needle 100 mounted in a carrier 71 on a needle bar 72 reciprocated



twice for each stitch through a link 73 and cam-actuated lever 74 to cause the needle to penetrate the mattress at two closely adjacent points to present the twine to devices which grip it and tie the held portions together in a weaver's knot. A pair of needle-guiding slots are formed in each of the pressers 63, 65 and the carrier 71 is rocked between successive needle penetrations so that the needle enters first one and then the other slot, by the mechanism shown in Fig. 18. The boss on the needle bar 72 to which the link 73 is connected has a projection 77 engaging in a slot in a bar 78 which has inclined end portions 79 adapted to move in fixed guideways, so that when the bar 78 is moved longitudinally by a rack 80 thereon engaged by teeth 82 on a cam-actuated lever, the bar 78 is jogged laterally and rocks the needle-bar 72 to cause the needle to be vibrated laterally. At its first penetration, Fig. 7, the needle presents the twine to be gripped between two jaws 120, 121 mounted in a tube 102 eccentrically carried in the knotter body 101. A hook 122, Fig. 9, on a rotary sleeve 103 now engages the loose end of twine and carries it to the position shown in Fig. 8, while the knotter body 101 is rotated a quarter turn in the opposite direction to place the groove 123 for the needle at its next penetration. As the needle again approaches the knotter, fingers 124 carried on rods 424 are advanced by a cam 428, Fig. 3, on the needle bar to separate the lower limb 113 of the twine loop from the knotter, Fig. 9, and the jaws 120, 121 open to release the twine. The sleeve 103 is now further rotated so that a spreader 125 thereon spreads the second bight 115, whereby the hook 122 carries the first twine end through the second bight and places it in the



jaws of a puller 130, Fig. 12. The puller comprises a jaw 132 pivoted at 138 to a fixed jaw which is pivoted at 135 to a bracket 133 secured to a rock-shaft 134. A trigger 140 holds the jaws apart against a spring 139 which closes the jaws on the twine when the trigger 140 is tripped by a pin carried on a part secured to the sleeve 103. A spring 136 urges the puller 130 against a stop 137 on the bracket 133, so that when the shaft 134 is rocked by a cam on the sleeve 50, the twine end is yieldingly pulled to tighten the knot as the needle withdraws. In the further movement of the bracket 133, a pin 141 on the jaw 132 engages

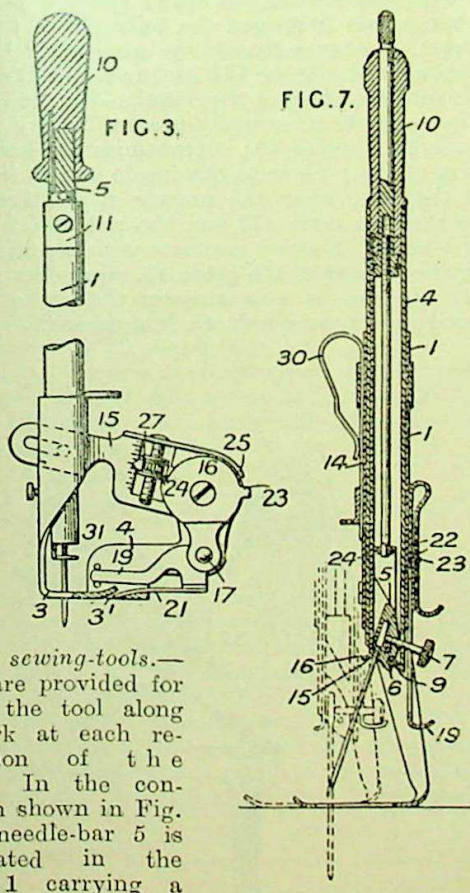
a fixed cam 142 and the jaws are opened to release the twine so that the last part of the needle withdrawal pulls the knot into the mattress body. A clamp 164, Fig. 18, on the bracket 61 and a clamp 165 on the needle carrier 71 engaged by cams 170, 171 respectively control the twine passing to the needle.

Thread-cutters.—Mounted to slide in guideways in the pressers 63, 65 are cutting blades 150 carried on sliding bars 151, Fig. 12, which are advanced to sever the twine through connection with a cam-actuated lever.

163,380. Carson, L., and Douthart, W.
Dec. 17, 1919. *Drawings to Specification.*

Sewing-machines; lock-stitching by shuttles.—A thread guiding and tensioning device is substituted for the usual spool and spool case and a thread is led from an external supply to the thread-guiding device in the shuttle.

163,390. White, A. E., (Balinky, A.).
Jan. 13, 1920.



Hand sewing-tools.—Means are provided for feeding the tool along the work at each reciprocation of the needle. In the construction shown in Fig. 3, the needle-bar 5 is reciprocated in the sheath 1 carrying a

presser foot 3 to which is secured a web portion 4 having pivoted thereto at 14 the members 15, 16. The foot 3 is slotted at 3' to receive a feed-dog 21 guided by the tongue 19 and pins 31 and pivoted at 17 to the member 16, which is oscillated by the engagement of a projection 25 and an adjustable nut 27, carried by the member 15, with shoulders 23, 24 respectively on the member 16. The member 15 is oscillated by a pin-and-slot connection with the needle-bar. By this means, the action of raising the handle 10 to withdraw the needle from the work actuates the dog 21 to feed the tool by one step. An adjustable collar 11 on the needle-bar 5 limits the extent of downward movement of the needle. A thread-gripping member is carried by a rod received in the handle 10 which slides on the bar 5, so that on raising the handle, the thread is gripped first and afterwards the needle is withdrawn from the work. In the modification shown in Fig. 7, the needle is carried in a block 5 held in the full-line positions by a spring 9 and pivoted at 6 to the member 4, which is reciprocated in the frame 1 by the handle 10. At the end of the work-penetrating movement of the needle, the screw 7 engages the tail-piece 19 adjustably secured to the frame 1 by the pin 23 and holes 22, and the needle is tilted to vertical position to feed the tool one step along the work. The position of an adjustable wedge 24 determines the tilt of the needle thereby controlling the extent of feed. A thread tension device 30 is mounted on the frame 1 and a thread guide 15 having an opening 16 is carried by a member 14 secured in the handle 10. The handle 10 slides relatively to the member 4 so that on raising the handle, the guide 15 first contacts with the member 4, then grips the thread and afterwards lifts the member 4.

163,456. Gouldbourn, J., Ricks, F., and British United Shoe Machinery Co., Ltd.
Feb. 16, 1920. *Drawings to Specification.*

Boot-sole sewing-machines; rotary horns; chain-stitching; driving; starting and stopping gear; feed by presser-feet and the like.—Relates to a rotary-horn machine for stitching boot soles in which the horn is urged upwards by a spring and its position determines the stroke of the needle bar as described in Specification 10147/11 and consists in the addition of a cam-controlled uni-directional lock which prevents any rising movement of the horn during the upward movement of the needle. The machine described also includes the arrangement by which the speed of the machine shaft is automatically varied as the horn rotates as described in Specification 16186/10, a wire-clutch as described in Specification 720C/07, [Class 80, Mechanism &c.], and presser and feed foot mechanism as described in Specification 106,454. The main shaft is positioned end-on to the operator with a hand-wheel on the front end of the shaft.

163,485. British United Shoe Machinery Co., Ltd., (United Shoe Machinery Corporation). Feb. 20, 1920.

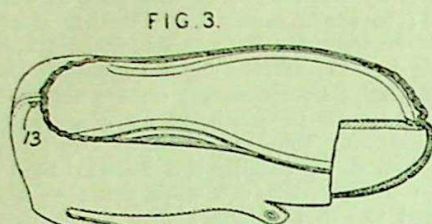
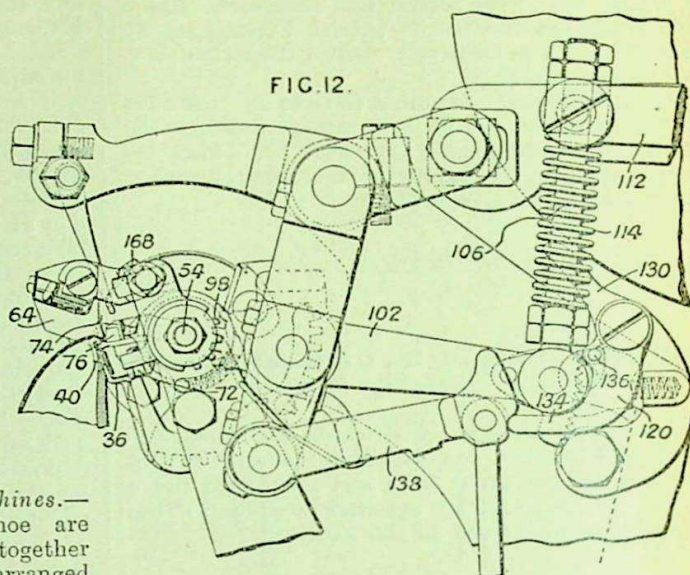
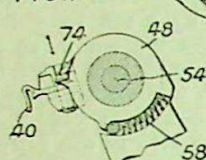


FIG. 14.



Boot-sole stitching and assembling machines.—The parts of a turn-shoe or welted shoe are assembled without lasting and stitched together with the usual kind of seam in a specially-arranged sewing-machine. The upper is moulded and the insole inserted and secured by a tack 13, as shown in Fig. 3, before being introduced to the sewing-machine. After the stitching is completed, a last somewhat larger than the shoe is forced into it and the shoe is thereby stretched into shape. Subsequent operations may then be performed with the last in the shoe. In the sewing-machine, the insole is supported by a channel guide 36 and a U-shaped guide 40 which passes between the sole and upper and embraces the feather of the sole. The edge of the upper is guided by an edge-guide 76 and is held between the upper surface of the guide 40 and a presser-foot 64. The upper part of the presser-foot is formed as a welt-guide. All these parts pivot about the axis 54 and, with the exception of the upper edge-guide 76, move with the feed-slide. The presser is secured by a screw 168 upon a lever boss having toothed en-

gagement 98 with a lever 102. By means of the lever 102, a cam lever 112 and an intervening spring 114, the presser is periodically pressed heavily upon the work and is locked by means of two detent levers 120. The presser is released when a cam depresses the tails 130 of the detent levers or when a treadle-operated lever 138 is depressed and a lever 134 having a pin 136 projecting into the plane of the detents is turned thereby. The guide 40 is normally pressed lightly upon the work by a spring 58; it transmits the heavy pressure of the presser to the insole and is lifted free of the sole, when the presser is positively lifted by the cam-lever 112 and the rod 106, by means of a screw 72 which contacts with a projection 74 on the boss 48 of the guide 40. In other respects, the machine is substantially the same as the Goodyear outsole lock-stitch machine.

163,627. Willcox & Gibbs Sewing Machine Co., Ltd., (Willcox & Gibbs Sewing Machine Co.). Aug. 24, 1920.

Multiple-needle machines; thread-end holders.—Thread-end holders are carried by a continuously rotating part of the machine, but are operative only on reversal of the machine. As applied to the rotary take-ups described in Specifications 6036/12 and 6037/12, the thread-end holders are forks with flared ends 40, 41, 42, 43 secured on the cam part 35 of the take-up. In the normal rotation in a clockwise direction, the forks pass rearwardly between the threads, but when the machine is reversal by hand the flared ends gather the threads 17 in pairs and cause them to be carried into the narrow grooves between the arms of the forks where they are held, as shown in Fig. 2. The machine is given half a revolution in the reverse direction, and this is

FIG. 3.

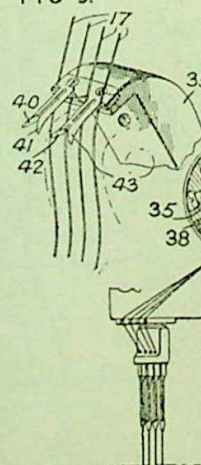
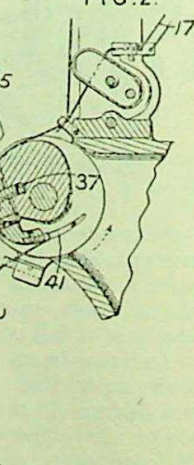


FIG. 2.

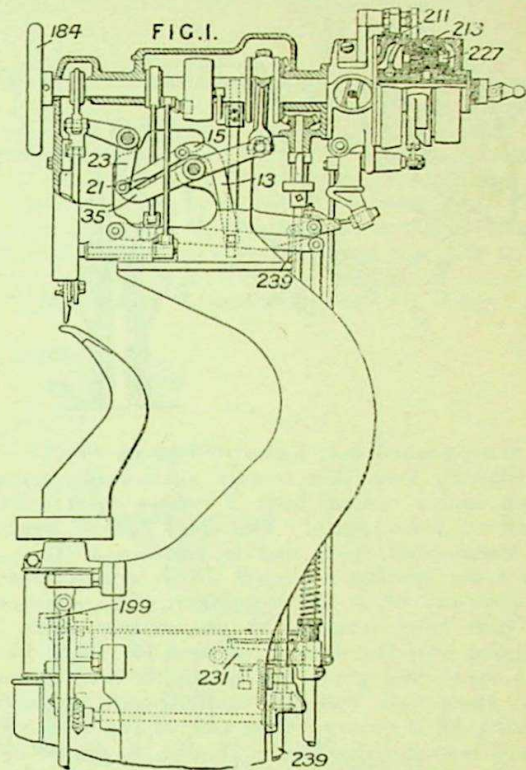


sufficient to pull-off enough thread for the commencement of the next seam. When the machine is re-started in the forward direction, the forks release the threads. The cam-part 35 of the take-up is adjustable by means of screws 37, 38. Fig. 2.

163,967. Gouldbourn, J., Ricks, F., and British United Shoe Machinery Co., Ltd. Feb. 16, 1920.

Chain-stitching machines; needles, dividing; rotary horns; presser bars with periodic control; feed by presser and the like; driving; starting and stopping gear.—The main driving shaft extends from front to rear of the machine and is provided with a hand-wheel 184. The stroke of the needle-bar is determined by the position of the horn, which rises and falls as the thickness of the work varies, by means of mechanism 13, 15, 21, 23, 35 as described in Specification 10147/11. The presser and feed foot mechanism used is described in Specification 106,454. The speed of the machine is varied, as described in Specification 16186/10, by means of an epicyclic train including pinions 227 carried by a brake drum 213, the shoe of which is controlled from a cam 199 fast on the supporting shaft of the horn. The starting and stopping-gear includes a friction clutch 211 actuated from an inclined gimbal device and controlled from a treadle as described in Specification 720C/07, [Class 80, Mechanism &c.]. In moving the treadle to start the machine, a treadle rod 239 rises and throws in the clutch, the epi-

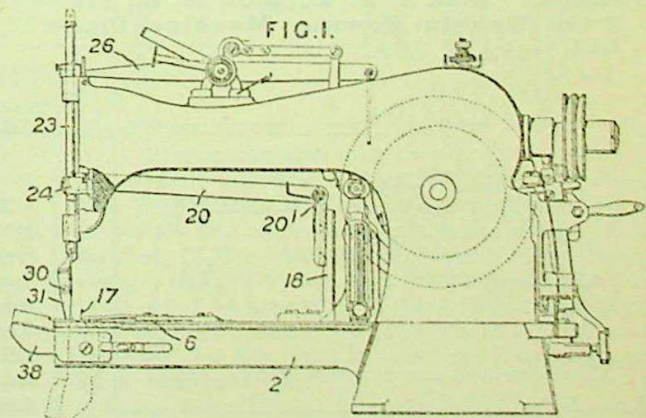
cyclic gearing imparting the lowest speed to the machine. Further upward movement of the rod 239 raises a lever 231 and, by removing the brake



from the drum 213, causes the speed to increase. Thereafter the speed is controlled by the cam 199.

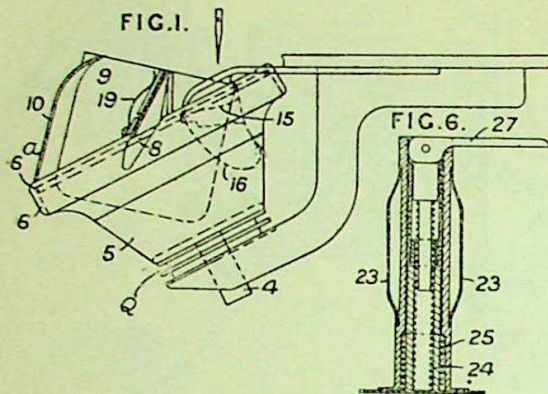
164,256. Fairweather, W., (Singer Manufacturing Co.). July 2, 1920.

Sewing-machines; feed by clamps; work supports.—In a machine for sewing the bow of a hat ribbon to a hat, the work is held between a flat clamp-plate 6 and a pair of fingers 31 carried by a vertical extension of an arm 20 which is pivoted to the clamp standard 18 and urged downwards by a spring 20. During stitching, the fingers hold the hat in place in the clamp and also deflect the upper limb of the ribbon bow. Either of the arms 31 can be turned about a pivot 30 into an inoperative position. An edge gauge 17 is adjustably secured on the clamp and the outer extremity of the clamp-plate is slightly inclined upwards. An inclined extension 38 of the work-support is secured to the machine arm 2 by screws. A collar 24 on a rod 23 engages



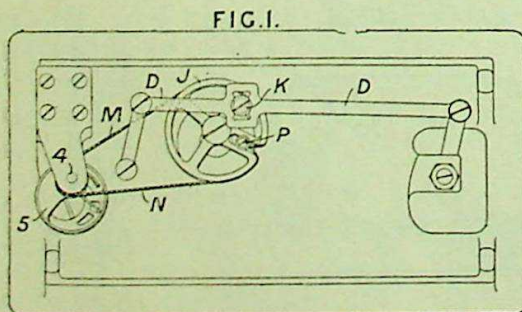
the underside of the arm 20 and a treadle-operated lever 26 is furnished for raising the rod 23 and opening the clamp by lifting the arm 20.

164,390. Bell, F. J. T., Bell, H. C., and Twin Bobbin Sewing Machine Co., Ltd. Dec. 5, 1919.



Sewing-machines; lock-stitching by hooks.—An oscillating loop-taker 6 with an inwardly turned hook and a conical body 5 rotates upon a fixed inclined pivot pin 4. The spool case 9 receives a commercial spool and is positioned obliquely upon the spool-case plate 8 which is supported in a race-way 6^a in the loop-taker. The spool-case is held from rotation by an arcuate spring 15 clipped over the ends of an arm 16. Ribs 10 on the spool case guide the needle-thread loop over the spool case and the under-thread tensioning spring 19 is secured upon one of the ribs. The spool is carried by a tube 23, Fig. 6, placed upon a spindle 24 and is detained by a latch 27. A spool-ejecting spring 25 pushes the tube 23 and the spool partly out of the case when the latch 27 is turned into line with the spindle. The loop-taker is oscillated by means of chains secured in grooves Q as described in Specification 164,391.

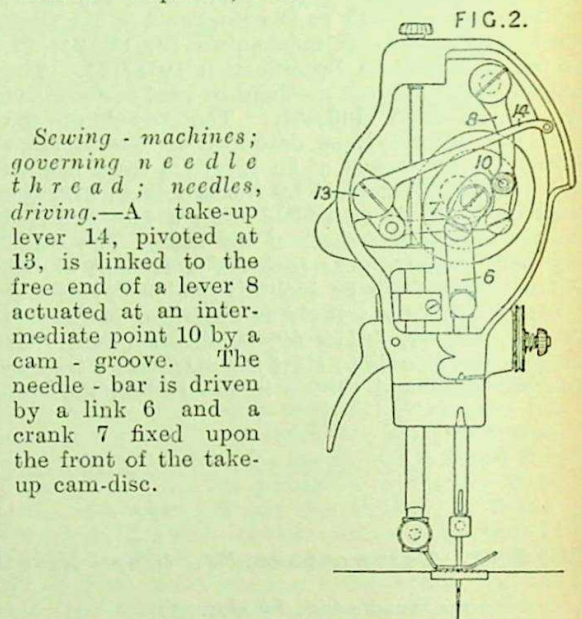
164,391. Bell, F. J. T., Bell, H. C., and Twin Bobbin Sewing Machine Co., Ltd. Dec. 5, 1919.



Sewing-machines; lock-stitching by hooks.—An oscillating lock stitch hook or other loop-taker is driven by flexible connections from a wheel which is oscillated by link-work. A hook 5 is mounted on an oblique pivot pin 4 and a wheel J is mounted on a similarly oblique spindle. Two lengths of

chain M, N have their ends fixed to the wheel J and to the hook body; separate grooves being provided in the latter for the two chains. The ends of the chain carried by the wheel are secured in a screwed washer combination P which can be moved radially to adjust the tension of the chains. The wheel is oscillated by sliding connection of a pin K upon it with a link D and, since the wheel plane is not parallel with the plane in which the link moves, the pin is free to slide axially and laterally in a slot. The mechanism may be modified to impart a continuous rotation to the hook. It is shown applied to an oscillating hook which is described in Specification 164,390.

164,400. Bell, F. J. T., Bell, H. C., and Twin Bobbin Sewing Machine Co., Ltd. Sept. 16, 1920.



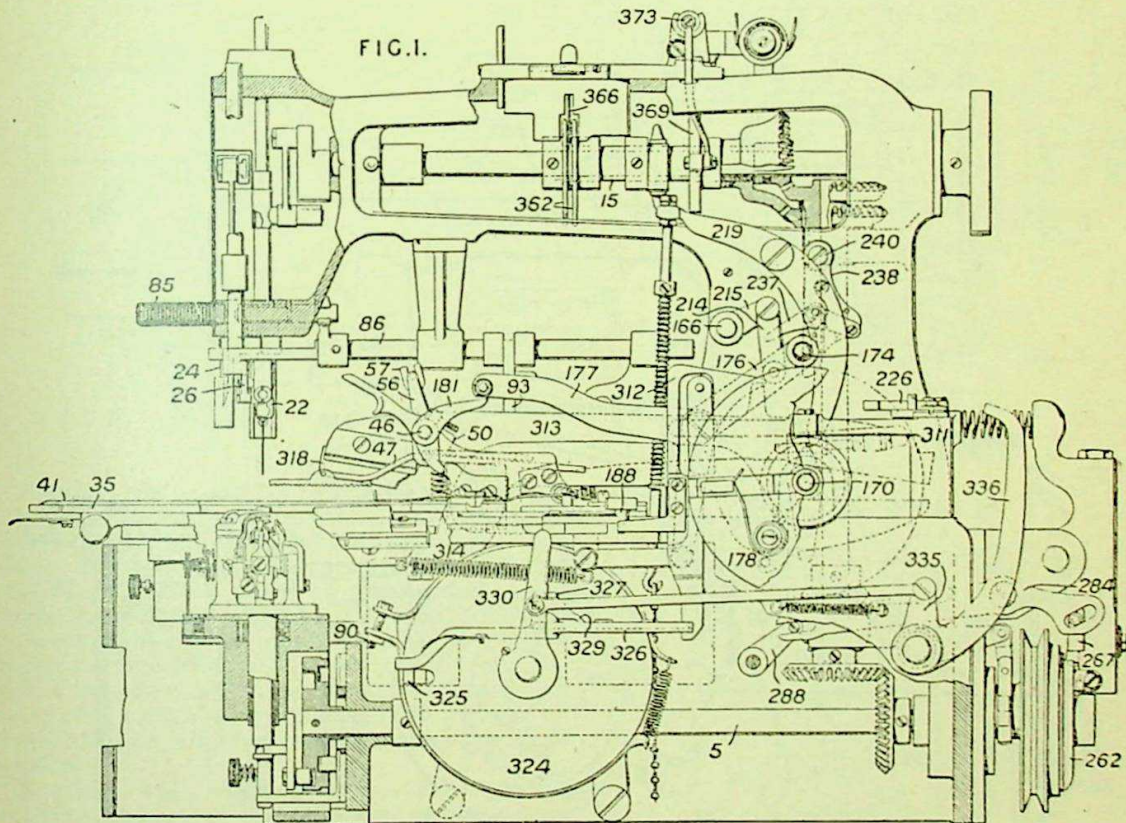
Sewing - machines; governing needle thread; needles, driving.—A take-up lever 14, pivoted at 13, is linked to the free end of a lever 8 actuated at an intermediate point 10 by a cam - groove. The needle - bar is driven by a link 6 and a crank 7 fixed upon the front of the take-up cam-disc.

164,858. Fairweather, W., (Singer Manufacturing Co.). March 17, 1920.

Button-hole sewing-machines.—The movement of the work - clamp is determined by the usual feed-wheel 59 and is the same for all lengths of buttonhole. During stitching, the feed-wheel is rotated step by step by a pin-wheel 107, a special toothed wheel 108, and toothed gearing 111, 112, 121. To move the work from cutting position to stitching position and back again when the stitching is completed, rapid rotary movement is given to the feed-wheel by a continuously-operated pawl 140 which engages with ratchet teeth 130. These teeth and a cam-surface 136, 137, which determine at what points in the feed-wheel cycle the stitching shall start and stop, are carried by an easily removable control disc 129. Inter-changeable control discs, Fig. 9, are provided for

different lengths of button hole. A one-way ratchet drive is interposed between the gear-wheels 112, 121 to permit the rapid movement of the feed-wheel without disconnecting the slow drive parts 107, 108, 112. Interchangeable wheels 121 are provided for different spacings of the stitches and, to accommodate wheels of different diameters, the wheels 112, 121 are carried on an adjustable bracket 114. The lateral movement of the work clamp, necessary when eyed button-holes are being stitched, is provided by a cam-lever 70 having a pin 75. For straight button-holes, the pin 75 can be withdrawn from engagement with the work-clamp plate. The button-hole is cut after stitching and the cutting can be prevented by means of a hand-lever 330, Fig. 1.

Work-clamps, closing, spreading, and opening.—The upper clamping-members 47 are mounted upon coaxial spindles 46 connected so as to rotate together by levers 56, 57 and are closed on to the clamp-plates by cam parts 50 of a lever 181 when the latter is engaged by the lever arm 177 in starting the machine. The cam-plates are pivoted on the plate 35 at 41 and are moved apart to spread the work, after the clamps are closed, by means of toggle-lever 195, 197, Fig. 2, operated by a lever 192 and a latch lever 188 connected to a depending lever arm 178. The lever arms 177, 178 are parts of a three-armed lever and the other arm 176 carries a spring-pressed pin 174 in a socket 175 which is normally held in an inoperative position by a latch-lever 238. When the



starting-treadle is depressed, a lever 219 carries the latch-lever, which is pivoted at 240, away from the pin 174, and the latter thereupon enters a cam groove in a continuously rotating belt pulley 171. After a single revolution of the pulley, during which the clamps are closed and spread, the pin 174 is ejected from the cam-groove by a projection 173 and is re-engaged by the latch-lever 238, which for this purpose has been disengaged from the starting-lever 219 by the engagement of the pin 174 with the tail of a latch 237. The work-clamps are opened only after a cutting operation and by means of a cam 347 on the single-revolution cutter shaft 170 which engages a lever 344 and, by means of a push-rod 339 and a lever arm 338, turns the cams 50 into inoperative positions. At the same time, a cam 213 on the

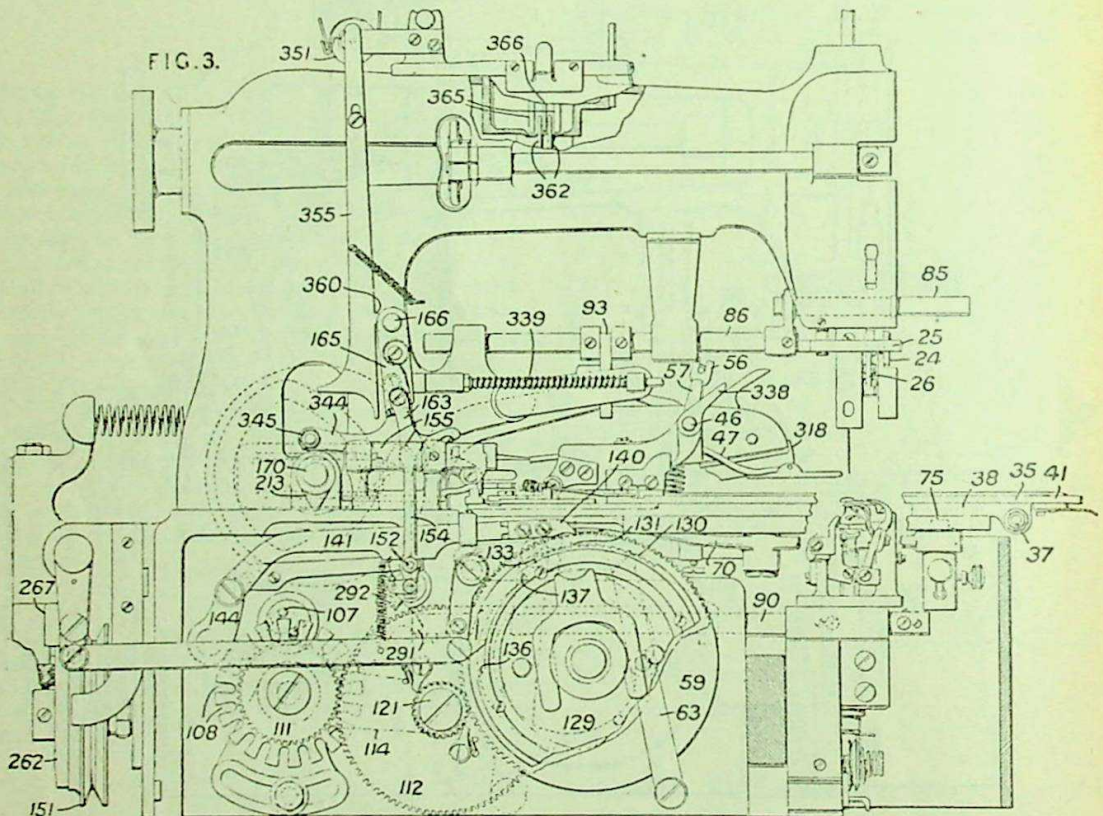
cutter-shaft actuates a slide 212 and, by means of a tappet-lever 209, bends the toggles 195, 197 to permit the work-clamps to move towards one another. The plate 35 supporting the work-clamps has depending lugs which slide laterally upon a rod 37 carried by a plate 38. The plate 35 may be moved laterally by the pin 75 on the cam-lever 70, and the plate 38 is moved longitudinally by a cam-lever 63.

Rapid actuation of feed-cam.—The pawl bar 141 is reciprocated continuously by a lever 144 linked to an eccentric strap on the stitching drive pulley 151. The pawl is held out of action during stitching by a bowl 152 which passes under the pawl bar when its lever 154, 155 is free to move inwards. At the commencement of a button-holing operation the parts are as shown in Fig. 3.

A shaft 166 is given one complete oscillation, by means of connections 214, 215 with the lever-arm 176, and on its return and forward movement, the latch 163 on a lever 165 presses upon an inclined surface of an arm on the inner side of the boss 155 and moves the bowl 152 outwards and away from the pawl-bar. The pawl falls into engagement with the feed-wheel and actuates it up to the end of the series of teeth 130 and is then lifted by the inclined surface 133. This actuation effects the movement of the work-clamp from cutting to stitching position and, at an intermediate point, a cam-projection on the clamp removes the latch 163 so that, when the pawl bar is lifted, that bowl 152 slips underneath it. At the completion of the stitching operation when the clutch 262 is disengaged and the stitching

parts are stopped, the usual slide block 267, through parts 284, 288, Fig. 1, a cam-edged lever 291, Fig. 3, and a plunger carrying a pin 292, as it rises on the stop-cam, pushes the lever 154 aside and permits the pawl to fall into engagement with the series of ratchet teeth 130 which by the rotation of the feed-wheel has been brought beneath the pawl. When the large tooth 131 is reached the pawl bar is lifted again and the bowl 152 slips underneath it and retains it until another cycle is commenced.

Button-holes, cutting.—Interchangeable cutter blocks 318 for different lengths of buttonholes are provided for the upper cutter lever 313, and the lower lever 314 is fitted with a slide carrying two cutters, one for eyed and the other for straight buttonholes. The slide can be fixed so that either



cutter is operative. The cutter levers are mounted on a fixed axle, and are actuated from the single-revolution cutter shaft 170, which is put in action when the clutch-controlling lever 312 is turned upon its pivot 311 by a cam-lever 326; the latter being turned upon its pivot 327 by a cam projection 325 on a disc 324 mounted to rotate with the feed-cam. A catch 226 which holds the starting lever 219 in running position is mounted upon a lateral arm of the lever 312, and when the latter is turned to cause the cutting of a buttonhole the catch releases the starting-lever, which then returns to its initial position. A slide 329 in the lever 326 forms the operative end of that lever, and the cutting operation can be prevented by drawing the hand-lever 330 for-

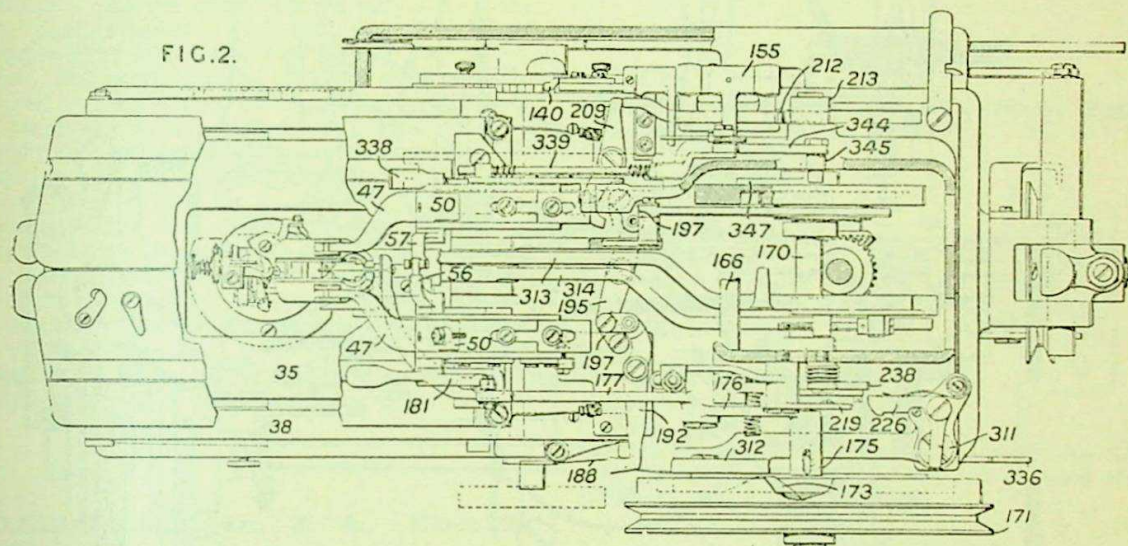
wardly and so withdrawing the slide 329 out of reach of the lever 312. The lever 330 is linked to a lever 336 so that when the cutting operation is prevented, the lever 335 independently actuates the catch 226 and releases the starting-lever.

Stitch-forming devices.—The sleeve carrying the laterally vibrating needle-holder and the turret for the looper parts are turned through half a revolution during stitching and returned afterwards by toothed racks 85, 90. The rack 85 is connected to a sliding-bar 86 which is reciprocated by means of a part 93 of a cam-actuated frame carrying the rack 90. The shaft 5 driving the under-thread loopers makes one revolution for two reciprocations of the needle. The needle-

thread passes through eyes in the ends of fixed arms 365, Fig. 3, and over the periphery of two adjacent plate-cams 362. The thread is prevented from being drawn round the cams by being passed through a slot in a plate 366 which passes between the cam-discs. The cams are carried by a sleeve shaft 15, which makes one revolution for two reciprocations of the needle. A thread lock 373 is operated by a cam 369 on the sleeve shaft.

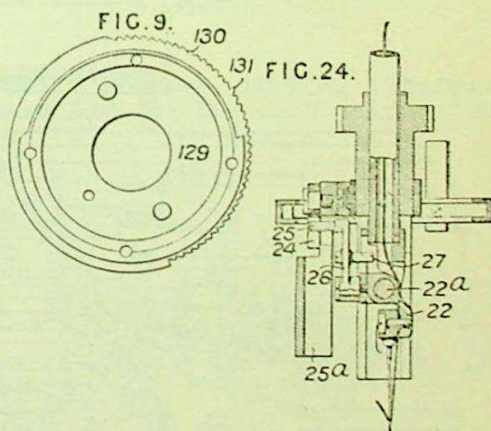
Needles, vibrating laterally.—The needle-holder 22, Fig. 24, slides upon a cross-bar 22^a and carries

a lever 26, having a pin 25 at its free end which enters the fork of a lever 24 when the needle is at the top of its stroke. A pin 27 is adjustably fixed at some intermediate point in the lever 26 and engages with a fixed slot in the cross-head of the needle-bar. The lever 24 moves the pin 25 from one extreme position to the other, and as the needle-bar reciprocates, the pin 25 moves in the corresponding groove of a pair formed in a stationary part 25^a. The position of the pin 27 on the lever 26 determines the amplitude of the lateral vibration.



Threads, controlling otherwise than in stitch-forming.—When the lever 344 is operated by the cam 347 on the cutter-shaft, to open the work-clamp, the cam-bowl 345 engages with and lifts a plate 355, which serves to release the needle-thread tension device 351. The plate is held in its raised position by means of a lug 360, which engages a recess cut in the base of the lever 165. When the lever 165 is turned at the commencement of a buttonholing operation the plate is released, and in falling reinstates the needle-thread tension.

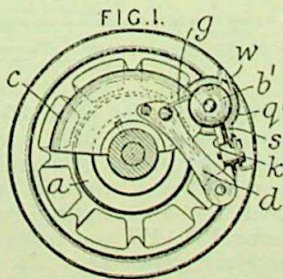
Starting and stopping gear.—The positive stopping device is of a known type, and includes a clutch of the same general character as that described in Specification 18274/07.



165,220. Flanagan, J. A. March 24, 1920.

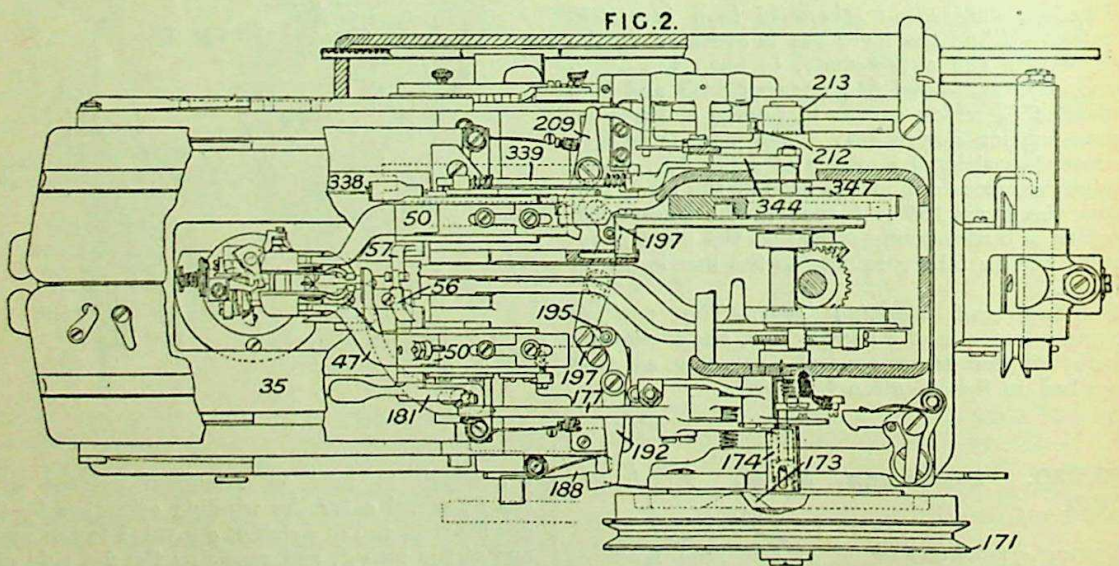
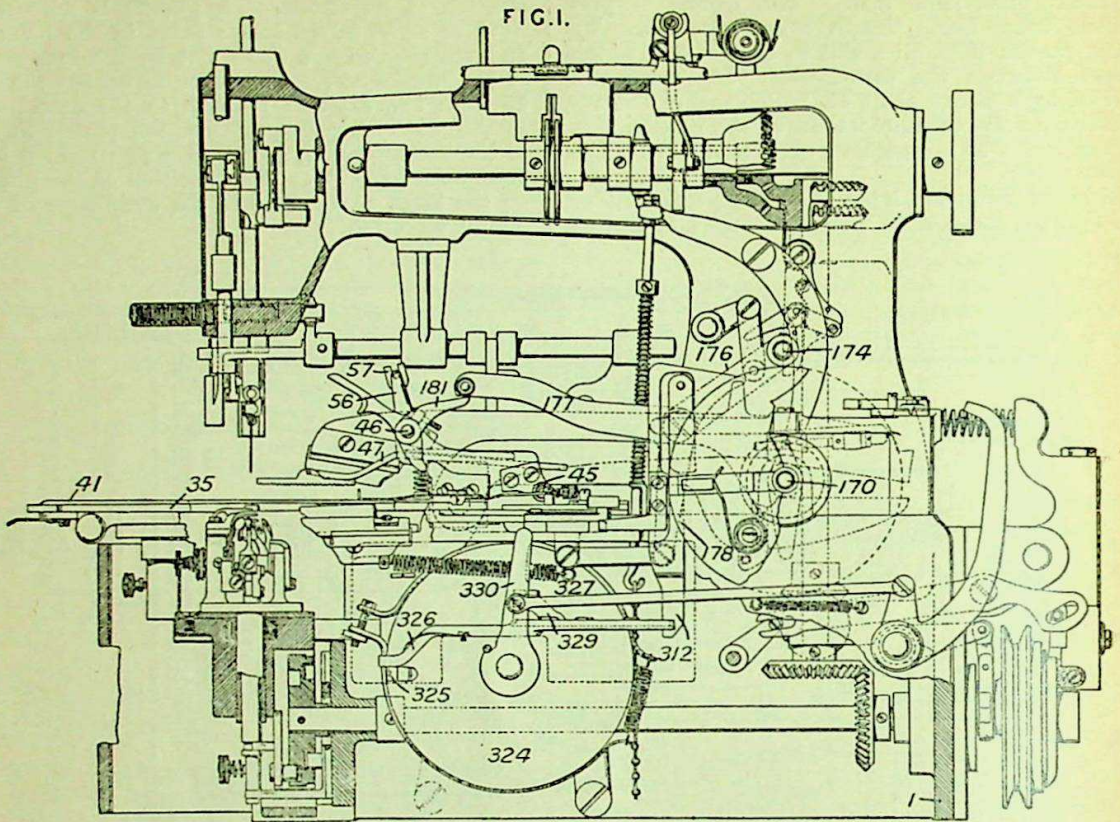
Sewing-machines.—

The bracket *k* carrying the bobbin *b*¹ is pivoted to an arm *d* fixed to the wheel guard *c*, and is urged towards in-operative position by a spring coiled about its pivot. The bobbin spindle carries a wheel



*q*¹, which is held in frictional contact with the fly-wheel *a* for the winding operation by the downturned end of a detent *g* pivoted to the upper end of the arm *d*, and engaging the flat side of a bearing in which the bobbin spindle is mounted. The detent carries an arm which rests on the thread wound on the bobbin, and is raised thereby as winding proceeds, until, when the bobbin is full, the end of the detent is disengaged from the bearing, allowing the bracket *k* to swing to in-operative position. A thread-guiding finger *w* is actuated by a cam on a wheel *s* driven by a worm on the bobbin spindle.

165,386. Fairweather, W., (Singer Manufacturing Co.). March 17, 1920.



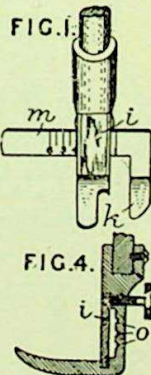
Button-hole sewing-machines. — Work-clamps, closing, spreading, and opening. The upper clamping members 47 are mounted upon pins 45 and are closed by cams 50 on coaxial spindles 46 connected so as to rotate together by levers 56, 57. The spindles 46 are actuated by a lever 181 when the latter is engaged by the lever arm 177 in starting the machine. The clamp-plates are

pivoted on the plate 35 at 41, and are moved apart to spread the work after the clamps are closed by means of toggle-levers 195, 197, Fig. 2, operated by a lever 192 and a latch lever 188 connected to a depending lever arm 178. The lever arms 177, 178 are parts of a three-armed lever, and the other arm 176 carries a spring-pressed pin 174, which is normally held in an inoperative

position. When the starting-treadle is depressed, the pin 174 is released and enters a cam-groove in a continuously rotating belt pulley 171. After a single revolution of the pulley, during which the clamps are closed and spread, the pin 174 is ejected from the cam-groove by a projection 173 and is re-engaged. The work-clamps are opened only after a cutting operation and by means of a cam 347 on the single-revolution cutter-shaft 170, which engages a lever 344, and by means of a push rod 339 and a lever arm 338 turns the cams 50 into inoperative positions. At the same time, a cam 213 on the cutter-shaft actuates a slide 212, and by means of a tappet-lever 209 bends the toggles 195, 197 to permit the work-clamps to move towards one another. The cutter levers are actuated from the single-revolution cutter shaft 170, which is brought into action by means of a cam-lever 326 when the latter is turned upon its pivot 327 by a cam projection 325 on a disc 324 mounted to rotate with the feed-cam. A slide 329 in the lever 326 forms the operative end of that lever and the cutting operation, and consequently the opening of the work-clamp, can be prevented by drawing the hand-lever 330 forwardly and so withdrawing the slide 329 out of reach of a lever 312. The invention is shown applied to a machine as described in Specification 164,858.

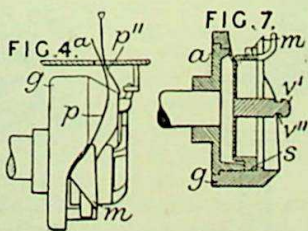
165,522. Flanagan, J. A. March 26, 1920.

Sewing - machines; work-guides.—A graduated bar *m* carries a guide element *k* which may form a complementary part to the presser-foot. The bar *m* is held on the presser-foot by a clamping plate *i* and can be adjusted both vertically and horizontally. A rib on the back of the bar *m* engages with one or other of slots *o* in the presser-foot shank.



165,527. Flanagan, J. A. March 27, 1920.

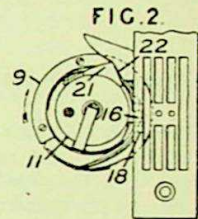
Sewing - machines; lock - stitching by hooks.—The needle-thread loop is twisted in the formation of a lock stitch. The rotary hook is formed on a partly cylindrical and partly conical member *g* secured to a flange *a* of the hook shaft. The stationary bobbin-case holder *s* rides in a race



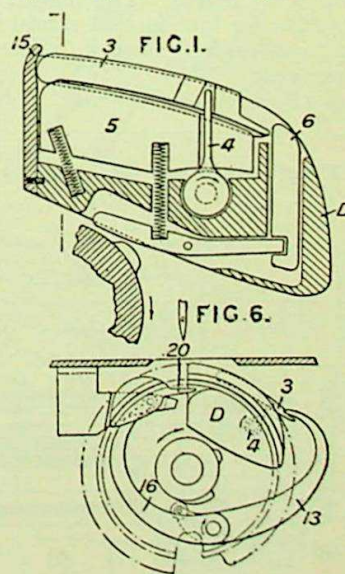
formed by shoulders on the parts *g*, *a*. The bobbin-case is carried on a pin *v*¹ and is held in position by a spring latch which engages the groove *v*¹¹. The loop-taking hook *m* passes on the left side, Fig. 4^a, of the needle, the thread-loop arm *p*¹¹ is detained by the usual part of the spool-case holder, and the arm *p*, which at first lies upon the exterior of the hook-carrying member *g*, finally slides off the conical surface and passes over the right face, Fig. 4^a, of the bobbin-case. The arm *p*¹¹ at the same time passes between the member *g* and the bobbin-case.

165,678. Fairweather, W., (*Singer Manufacturing Co.*) July 24, 1920.

Sewing - machines; lock-stitching by hooks.—The spool case 11 is mounted in an eccentric race-way on the rotary hook 9, and is provided with a cam-portion 21 which is brought, by the bodily movement of the spool-case, into contact with a fixed part 22, and is thereby given a slight backward rotational movement to withdraw the stop 16 on the spool case from the forward side 18 of the usual detaining-notch.



165,813. Baker Sewing Machine Trust, Ltd., and Baker, F. Jan. 2, 1919.



Sewing-machines; loop stitching.—Relates to machines forming stitches by passing the extended bight of one needle thread loop through several subsequent needle thread loops as described in Specifications 14661/12 and 22250/13. Needle

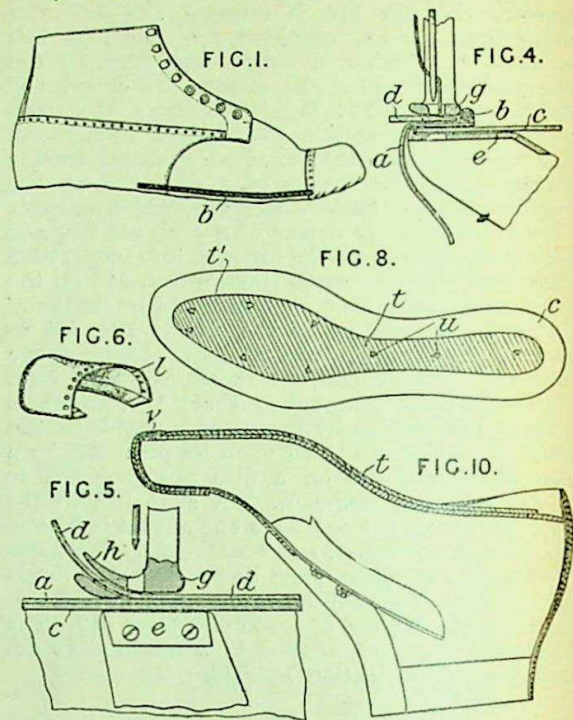
thread loops are caught by a rotary hook and released so as to pass over a loose case D. The first loop is caught by a tongue 3 which is caused to project as shown in Fig. 6 by a spring-urged lever 4. When the loop is caught, the tongue is moved back by a lever 13, Fig. 6, and it is locked in place by a bar 6. Then as the loop is tightened, it begins to slip over the tongue, between it and a spring-pressed block 5. The friction occasioned by the block 5 suitably tensions the loop and permits it step by step to be drawn along the tongue as other thread loops are passed over the case D. When the loop clears from the tongue 3 the tongue is moved to project from the case D, and the loop is held by the projection 15 until lifted by another loop as the latter is caught by the tongue. The needle threads loops are engaged and spread for the rotary hook by a secondary hook 20 operated by a lever 16.

166,046. Stedler, H. W. July 8, 1920.

Boot-sole stitching and assembling machines.—To avoid the use of lasts, boot uppers are connected to a moulded and flanged toe cap *l*, Fig. 6, and are provided with a temporary cord *b*, Fig. 1, or shoulder which acts as a guide and receives the pressure of a presser-foot *g*, Fig. 4, of a sewing machine so that the upper *a* is drawn inwards as it is sewn to an innersole *c*. The innersole is guided on a flanged needle plate *e*. If a welt *d* is used, it is fed through a groove *h*, Fig. 5, in the presser-foot *g*. In a modification for pointed shoes, the edge *t'*, Fig. 8, of a metal plate *t*, to which the insole *c* is temporarily attached by pins *u*, acts as a guide for the presser-foot of the sewing machine, and the boot upper is pulled inwards by hand. The plate *t* is suitably bent, Fig. 10, for high heeled shoes, and the toe caps may be secured by pegs *v*. The plate is afterwards removed.

(For Figures see next column.)

166,046.



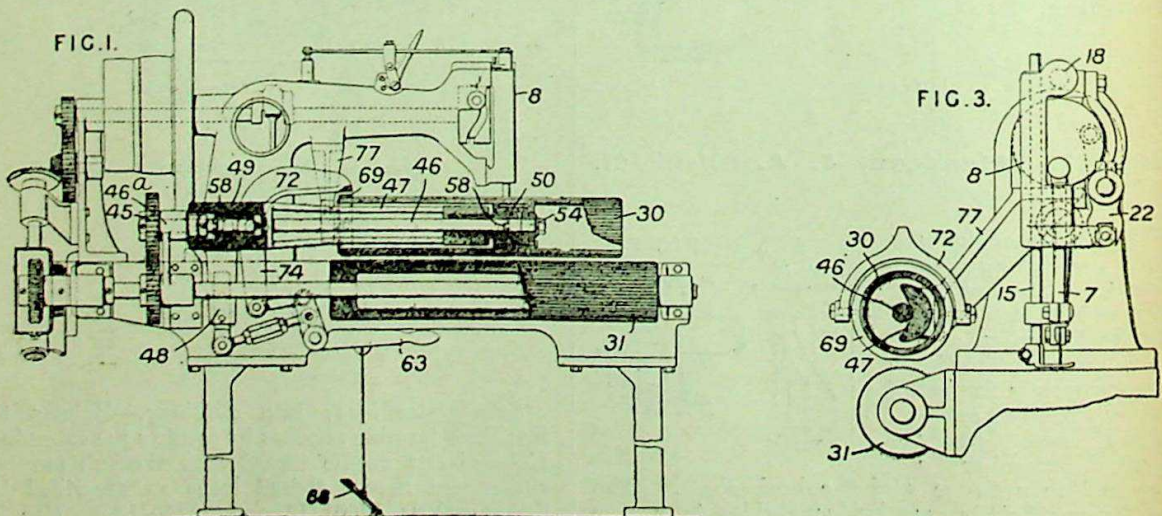
166,855. Morrall, Ltd., A., and Lewis, G. Dec. 3, 1920.



Crochet hooks.—A hook is made in one piece and having a flattened handle portion *c* is formed with a reduced stem *a* which is of one diameter from a short tapered shoulder *d* to the hook.

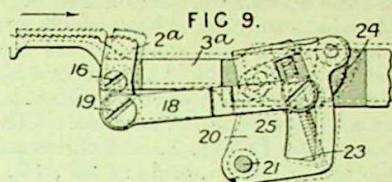
Reference has been directed by the Comptroller to Specification 21774/00.

167,023. Fairweather, W., (Singer Manufacturing Co.). May 19, 1920.



Sewing-machines; feed by wheels and other rotary devices and by needles.—Continuous rotary movement is imparted to a pair of rollers 30, 31 mounted beyond the stitching point and the needle is positively vibrated in the direction of feed. The lower roller turns in fixed bearings, and then two rollers are actuated by the toothed gearing shown. The upper roller is supported upon the spherical end 50 of a lever arm 47, pivoted at 49, and is driven by a shaft comprising end portions 54, 46^a secured to the roller and the spur-wheel 45 and an intermediate portion 46 mounted in the arm 47 and connected to the end portions by universal couplings 58. It is maintained parallel to the lower roller by means of a sleeve 69 pivoted to a lever 72. The levers 47, 72 have depending arms 48, 74 suitably proportioned and connected to a lever 63 which may be depressed by a needle 68. A locking device, not shown, is fitted to the lever 63. A bracket 77 is formed with a guiding surface against which the lever arm 47 bears, and is thereby prevented from lateral movement. The presser-bar 15 and needle-bar 7 are mounted in a frame 8 pivoted at 18 and oscillated by a cam-actuated lever 22.

167,057. Thompson, W. P., (Union Special Machine Co.). June 24, 1920.

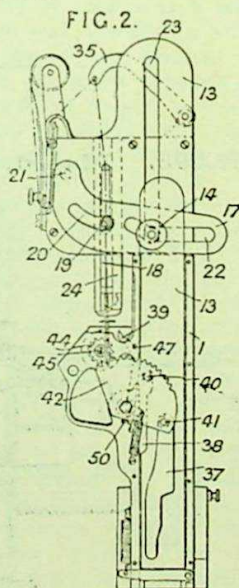


Sewing-machines; feed by dogs, duplex.—An auxiliary feed-dog 2^a is pivoted upon a main feed-bar 3^a, and is given differential to-and-fro movements by link-work actuated from the main feed-bar. A plate 20 is pivoted at 21 to the machine frame, and is connected by a link 24 to a point 25 on the feed-bar. The auxiliary feed-dog is pivoted at 16 to the feed-bar, and a depending portion is connected by a link 18 to a pivot block adjustably secured in an arcuate slot 23 in the plate 20. The mechanism is arranged so that the pin 19 has a smaller movement than the feed-bar, and consequently the upper serrated surface has a greater movement.

167,028. Beer, G., and Keller (formerly Buchold), J. May 20, 1920.

Portable sewing-machines; presser-bars with periodic control.—

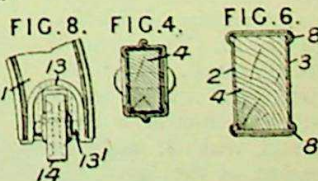
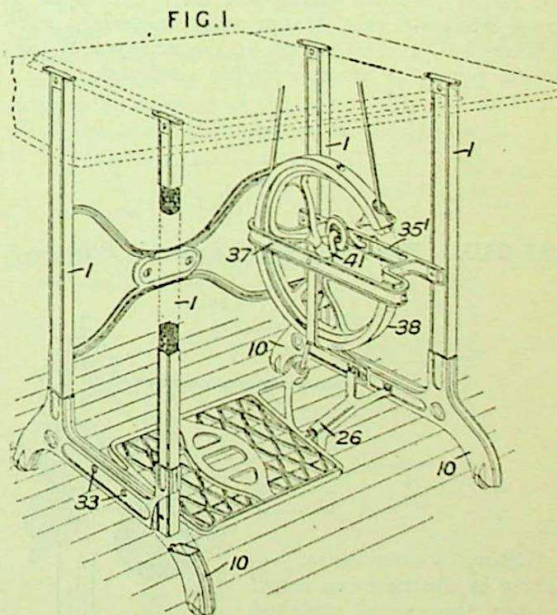
A slide 13, reciprocated by a handle 14 in guideways in an arm 1 adapted to be clamped to a table, actuates all the sewing devices. The spindle of the handle carries a roller engaging a slot 22 in lever 17 which is pivoted at 21 and actuates the needle bar 18 through the pin 19 and slot 20. The roller runs in a slot 23, and at the top of its stroke actuates the take-up 35. The presser-bar 24 is urged towards the work by a spring-rotated eccentric



(not shown) on the slide, and is periodically locked by means of a lever engaging ratchet teeth on the eccentric and actuated by connection with the lever 17. The shuttle is driven by the pinion 44 rotated by the segment 42 which carries pins 40 and 41 engaging respectively a recess 38 and a slot 37 in the slide. The feed point 39 is oscillated between the stops 47 and 50 by an eccentric on the spindle of the segment 42.

Lock-stitching by shuttles.—The recess 38 and slot 37 are so shaped that the shuttle dwells while the needle is out of the work, and is accelerated prior to throwing off the needle loop.

167,410. Fairweather, W., (Singer Manufacturing Co.). Sept. 25, 1920.



Sewing-machines; stands.—The stand for a small treadle-driven machine is made up of pressed metal parts of channel section united to

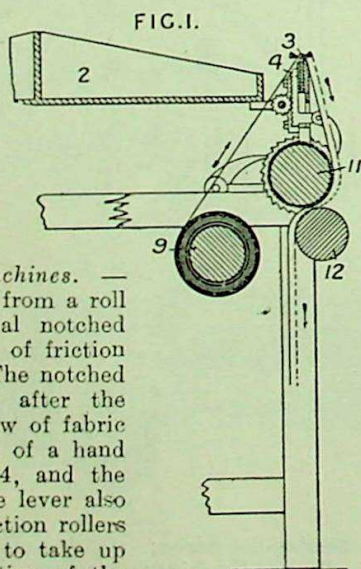
form members of rectangular cross-section. The uprights 1, Fig. 1, are formed of two channel-sections 2, 3, Fig. 6, secured together by the bending of the edges of the section 2 at 8. Stiffening cores 4, which may be of hard wood, are used. The foot-members 10 are made up as shown in Fig. 4, and have filling-blocks 4, where bolts 33, Fig. 1 are used to secure the cross-piece 26, which is made of an open channel section. The back is braced as shown in Fig. 1, and the crank-shaft 41 is supported in two members 35¹, 37, to the latter of which a circular dress-guard 38 is secured. The uprights are secured, in sockets provided by the foot members, by means of half rivets which are electrically welded together in position.

Castors.—Wheel castors comprise an arched piece 13, Fig. 8, carrying the trunnions 13¹ of wheels 14. The pieces 13 fit snugly into sockets in the foot members.

167,570. Pokorny, F. E. de, (known as Stettith, O.). May 8, 1920.

Embroidery.—Any form of ornamentation for ladies' apparel, hats, or boudoir-caps, such as painting, needlework, stencilling, printing, or the like, is carried out partly on an outer layer of transparent or semi-transparent material, such as georgette, and partly on an under layer of silk, velvet, plush, or other suitable material.

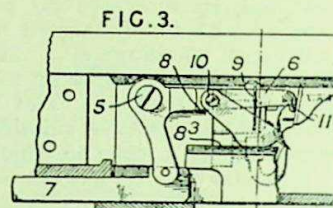
167,640. Mason, W. June 11, 1920.



Tufting - machines. — Fabric is drawn from a roll 9 over the usual notched bar 3 by means of friction rollers 11, 12. The notched bar is lowered, after the insertion of a row of fabric strips, by means of a hand lever and rack 4, and the movement of the lever also advances the friction rollers 11, 12 one step to take up the finished portion of the fabric. Fabric strips are kept in a bin 2, which

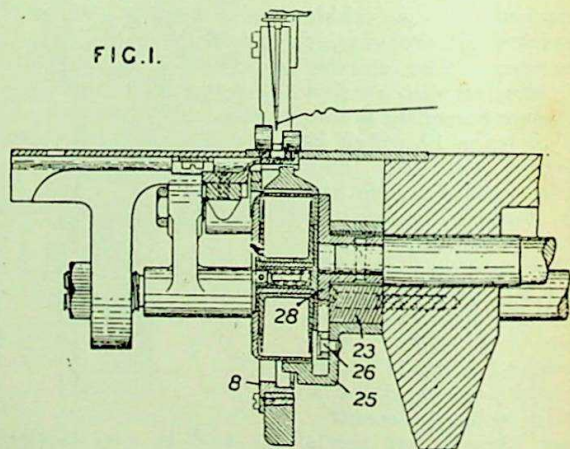
may have a perforated bottom. The needle carriage may be moved across the machine by a screw.

167,673. Fairweather, W., (Singer Manufacturing Co.). July 24, 1920.



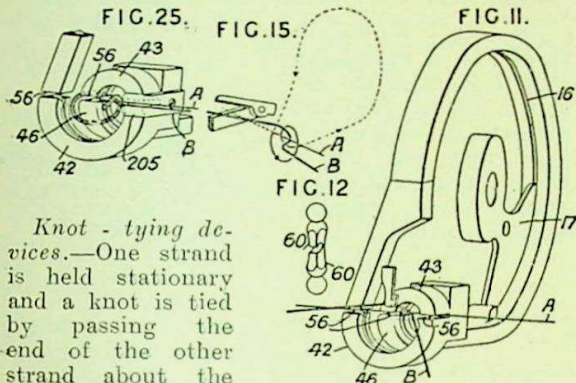
Thread-cutters.—One arm 6 of a bell-crank lever pivoted at 5 is formed into a scissor blade, and the second blade 8 is pivoted to it at 10. The blade 8 is held in contact with a cam-block 8³ and with the other blade by a spring 9, and the blade 6 has a thread-engaging hook 11 at its tip. The lever may be oscillated by a connection 7 from the stop-gear of the machine.

167,693. Marsden, J. Aug. 28, 1920.



Sewing-machines; lock-stitching by shuttle.—To accommodate a larger shuttle without lowering the shuttle driving-shaft, the shuttle rotates about a centre below that of the shaft, and its driver is actuated by a variable-motion mechanism from the shaft. The driver 25 is mounted upon a boss 23, surrounding the end of the shaft and eccentric thereto, and carries a bowl 26 engaging a slot in a crank-arm 28 secured on the end of the shaft. The shuttle race is fitted with a liner 8.

167,753. Taft, E. A., (Assignee of Barker, R. W.). Aug. 13, 1920, [Convention date].

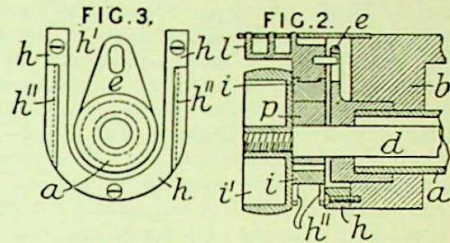


Knot - tying devices.—One strand is held stationary and a knot is tied by passing the end of the other strand about the stationary strand, the kind of knot determining the path of the strand end. In knot-tying mechanism, the strand end is carried by a hook-member moving in a raceway of special shape and propelled by means of an endless chain of bearing balls. A knot, so tied, is not entangled with the tying instrument but its convolutions pass easily between the balls of the driving chain. In a knotter for tying weavers' knots, a thread-end carrier 60, Fig. 12, is mounted in a continuous race 16 of the special form shown in Fig. 11, and is driven to and fro by means of a series of balls filling the race from end to end of a driver 17. The threads are placed as shown, the thread A lying in slots 56 cut right through the raceway. When the driver is moved upwards, the balls carry the carrier 60 around the race parts 42 and 43 and into the part 46, thereby producing the convolutions shown in Fig. 15. By pulling upon the right-hand end of the thread A, that thread is brought freely between the balls in the raceway and out of the slots 56 and the threads are tightened upon one another in the form of the required knot. The same raceway can be used to form a spooler's knot if one of the cross-slots 56 is masked by a plate 205, Fig. 25. The two threads are laid side by side in the remaining slots and when the carrier is actuated to carry the free ends of the two threads along the raceway, a knot is formed as shown in Fig. 25. Other knots can be formed by providing suitably shaped raceways. A hand-carried knotter for tying weavers' knots is described in full and includes means for guiding the two threads to their initial positions, and for cutting the thread A first and the thread B at a later point in the cycle, and a device which holds the uncut part of the thread, and at the completion of the concatenation pulls the threads clear of the ball race and tightens them into a knot.

167,802. Flanagan, J. A. March 15, 1920.

Sewing-machines; feed by dogs.—The feed-dog 1 of the machine described in Specification 137,454

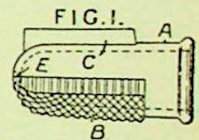
has a dovetail connection with a frame *i* which slides in vertical guides *h*¹¹ of a block *h* bolted to the bearing *b* and is reciprocated to raise and lower the feed-dog by a cam *p* mounted on the shuttle shaft *d* and operating within a rectangular



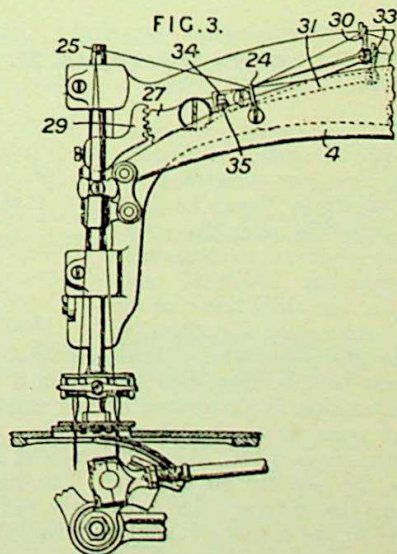
opening *i*¹ in the frame *i*. The block *h* is recessed at *h*¹ to permit the oscillation of the arm *e*, mounted on the hollow rock-shaft *a*, for imparting the feed movements to the dog. The construction may be modified by arranging the shafts *d* and *a* apart.

167,906. Benson, W. S. June 7, 1920.

Thimbles.—A tooth-cleaning appliance comprises a thimble-shaped body *A* of india-rubber or similar material provided with an external longitudinal rib *C* and, if desired, with an externally roughened portion *B*. The body *A* is perforated at the end *E*.



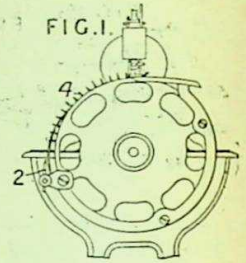
168,205. Thompson, W. P., (Union Special Machine Co.). June 24, 1920.



Multiple-needle machines.—Separately adjustable thread-controlling devices are provided for the several needle threads. The threads pass from the tension devices to eyes on the rear of the needle-bar actuating lever 4, intermediate eyes 30, 33, eyes 24 on the forepart of the needle-actuating lever, and eyes 25 on the needle-bar. The eyes 30, 33 are secured to a lever 27 of known form which is geared to a rack 29 on the presser bar so that the positions of the eyes 30, 33 vary with the thickness of the work. The invention consists in making the eyes 30, 33 relatively adjustable and in the two-needle machine shown, one eye 33 is carried by an auxiliary lever 31 which is adjustably secured upon the lever 27 by means of a screw and slot 34, 35.

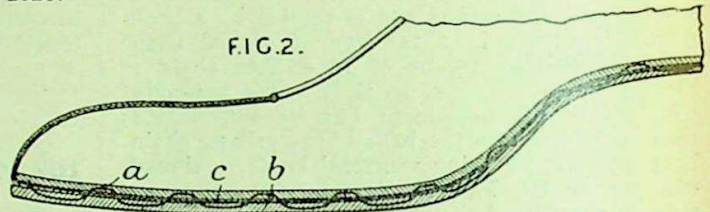
168,231. Wilson, A., and Henshilwood, A. B. July 31, 1920.

Sewing - machines; stands.—A sharpened wire 2 is fixed to the stand of a basting-machine in a position such that the work, after leaving the feed-wheel 4, is impaled upon the wire.



168,239. Freer, H. H. Aug. 12, 1920.

Stitches and seams.—A sole *b* is connected to an insole *c* of a lasted shoe by stitches *a* which do not pass completely through either sole or insole.



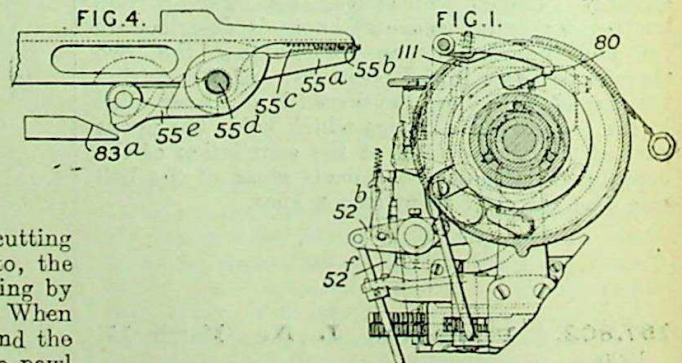
168,358. Voss, M. April 28, 1920.

Embroidery.—An embroidered lace or net work *a* has parallel reinforced or corded lines *b*², *b*³ connected at intervals by transverse reinforced or corded lines. The fabric is slit between the parallel lines up to any of the transverse lines to form the armhole and shoulder strap as shown.



168,399. Ricks, F., Burgoyne, E. G. E., and British United Shoe Machinery Co., Ltd. May 31, 1920.

Boot - sole sewing-machines; welted and turnshoe; starting and stopping gear.—Relates to welt-end cutting and holding devices operative after the stopping of the machine, as described in Specification 19679/11 and consists in the addition of a separate manually-controlled device for the prevention of the welt-end cutting operation. In the Specification referred to, the cutting operation is prevented during running by a rod 111 coupled to the stopping-gear. When the machine is stopped, this rod is raised and the separator, by pulling on the welt, lifts the pawl 80 and sets the cutting mechanism free to operate. According to the present invention, the rod 111 is coupled to a separate lever 52^b which is operated



from a separate treadle and is held locked, until the machine is stopped, by a latch 52^f. The welt-holding devices are also modified. The lower jaw

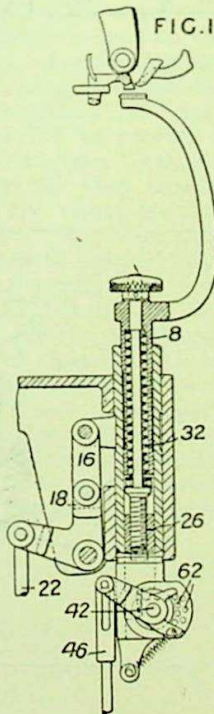
55^a is formed with two gripping-surfaces 55^b, 55^c at a slight angle one to the other so that welts of differing thicknesses are squarely gripped without adjustment of the jaws. The rear portion 55^e is weighted so that when it passes on to the end of a cam-surface 83^a, the jaw closes lightly on to the welt before the completion of the forward movement of the jaws. The front and rear portions 55^a, 55^e are mounted separately upon the pivot 55^d and there is a slight freedom of movement between them. They are coupled together by a spiral torsion spring whereby welts of unequal thicknesses are substantially equally compressed between the jaws. The Provisional Specification refers to Specification 20731/12.

168,403. Woodcock, R. E., and British United Shoe Machinery Co., Ltd.
May 31, 1920.

Boot-sole stitching and assembling machines; rotary horns.

—Relates to a turn-shoe machine such as described in Specifications 4173/12 and 20729/12 and consists in the provision of a special movement of the horn to accommodate the sudden increase in the thickness of the work produced by a heel layer attached to the sole before assembling. The horn is normally supported by a spring 32 pressing upwards within a sleeve part 8 of the horn, and is lowered for the introduction and removal of a shoe by means of toggle links 16, 18 and a treadle-rod 22. At the time when the stitching passes from the sole only to the sole and

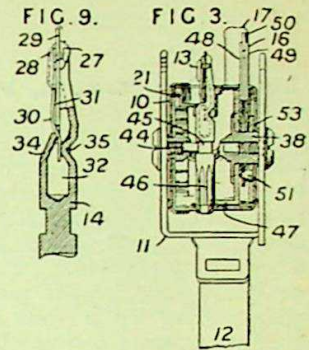
sole and heel layer, a downward movement of a predetermined extent is given to the horn by the depression of a treadle-rod 46. This rotates a shaft 42 having rack-and-pinion engagement with the lower support 26 of the spring 32, and the amount of the rotation is determined by the position of stop pins which may be inserted in any of the holes 62. Specification 163,485 is referred to.



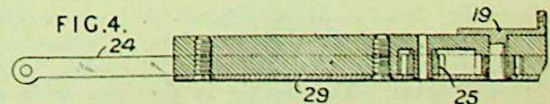
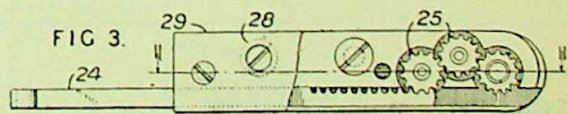
168,626. Marks, E. C. R., (Barber-Colman Co.). May 4, 1920.

Knot-tying devices.

—The tying-bill 13 is mounted in a casing 10 which is oscillated about the pivot 38 by a thumb-piece 17 relatively to a surrounding skeleton frame 11 carried on the member 12, which is fixed to the hand by a strap. The limbs of the frame 11 project beyond the casing 10 and are formed at their upper ends with thread-guiding slots. The bill is held against axial movement by the pin 44 and groove 45, and is rotated about its own axis in the oscillation of the drum by engagement of the pinion 46 with a fixed rack 47. Mounted in fixed relation with the frame 11 is a thread clamp 16 comprising outer members 48, 49 and an inner member 50 having a hooked end and provided with a roller 51 engaging a cam-groove in a plate 53 secured to the casing 10, so that as the casing rotates the member 50 descends and its end clamps the threads against the end faces of the members 48, 49. A torsion spring returns the casing to initial position and holds it against a yielding stop secured to the member 12. The bill 13 is formed by drilling the spindle 14, as shown at 32, Fig. 9, and reducing and bending the upper end at right-angles to form the jaw 27. On a pin 28 in this jaw is mounted a moving jaw 29 and a spring 30 held in position by the bent portions 34, 35. The jaw 29 has an enlargement 31 so that in the rotation of the bill, the jaw 29 is actuated to grip and then sever the threads by contact of the enlargement 31 with the sides of a cam-barrel 21, Fig. 8.



168,633. Singer Manufacturing Co., Ltd., Corral, H., and Stevens, B. A.
May 7, 1920.



Sewing-machines; lock-stitching by shuttles.

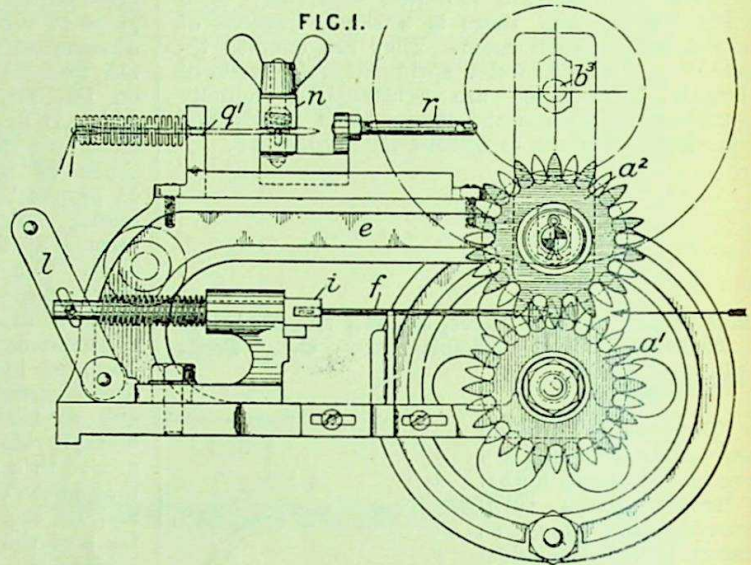
A shuttle is wholly supported upon an oscillating horizontal disc 19 driven through pin pinions 25 from a reciprocating rack 24, and according to the invention, the stock 29 and the moving parts sup-

ported in it constitute a self-contained fitting-which may be secured in place in the sewing-

machine by screws 28 and requires no adjustment after installation.

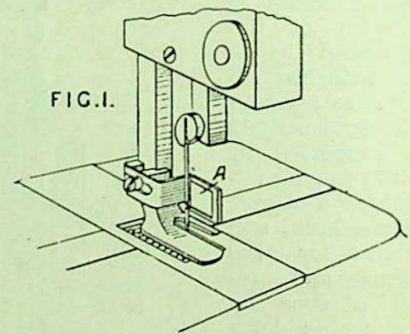
168,656. Heaton, P. June 4, 1920.

Running-stitch machines.—Two pairs of wheels a^1 , a^2 , with teeth in staggered relationship, pleat the fabric and press it on to a pair of needles f . The needles, being for the purpose carried by a slide i , are then pressed forward by means of a hand-lever l , and, on the return of the slide, are withdrawn with the fabric from the machine. The needles are then passed through holes q^1 and fastened in a slidable clamp n and, by means of a handle r , are pulled right through the holes q^1 to strip the fabric from them. The upper wheel a^2 is mounted in a pivoted arm e and the wheels may be driven by a hand-wheel on the spindle of either wheel or on an additional spindle b^3 .



168,715. Hatt, E. A. June 25, 1920.

Needle-threaders.—To facilitate the threading of a sewing-machine needle, a plate of light-coloured reflecting material is secured behind the needle eye as shown. The plate may be hinged to the presser-bar.



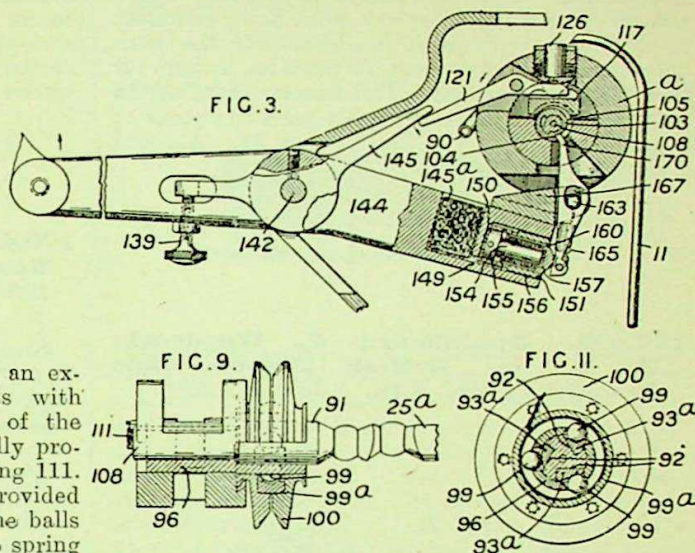
168,817. Pogson, J. W. Jan. 18, 1921.
Grant of Patent refused.

Darning; hand sewing-tools.—A latch-needle fitted with a handle is used to loop together, as shown, the cross threads of a "ladder" in knitted fabrics. The needle is provided with a removable damp-proof cover.



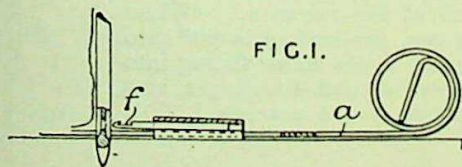
169,028. Metropolitan Sewing Machine Corporation, and Weis, J. P. June 24, 1920.

Sewing-machines; starting and stopping gear. — An oil cushion is provided in the stopping-mechanism for the driving-shaft of a sewing or other machine whereby the shaft is stopped without shock. The shaft 25^a, Fig. 9, to be driven has an enlarged end 91 in which are formed three equally-spaced peripheral slots 92, Fig. 11, adapted to receive three wedges 93^a surrounded by a sleeve 96, having three radial holes to receive balls 99 riding in grooves in the wedges eccentric to the axis of the shaft. The shaft end 91 has an extension 108, Figs. 3 and 9, which fits with rotary lost motion within the part 103 of the sleeve 96 and both these parts carry axially projecting pins which are connected by a spring 111. The continuously running pulley 100 is provided with a ring 99^a which loosely surrounds the balls 99 and, while the machine is running, the spring 111 holds the sleeve 96 in such angular position relatively to the shaft that the balls 99 rest on the high parts of the wedge grooves, whereby they are pressed into contact with the ring 99^a and the pulley and shafts are clutched together. The part 103 is eccentrically grooved at 105 to provide a stop shoulder 104 adapted to be engaged by a stop finger 170, Fig. 3, carried by the stop motion control lever 144 and thereby the sleeve 96 may be arrested and the shaft declutched. The stop finger 170 is slotted at 167 to receive the pivot pin 163 carried in the lever 144 and springs 165 urge the finger to stopping position, lost motion between the pin 163 and slot 167 allowing the finger to ride on the high part of the eccentric groove 105. A brake shoe 117 is pressed on to the part 103 by the spring plunger 126 and is released, when the lever 144 is lowered to remove the stop finger 170 from the shoulder 104, by the lever 121 which is engaged by an arm 145 loosely mounted on the pivot 142 of the lever 144 and adjustable



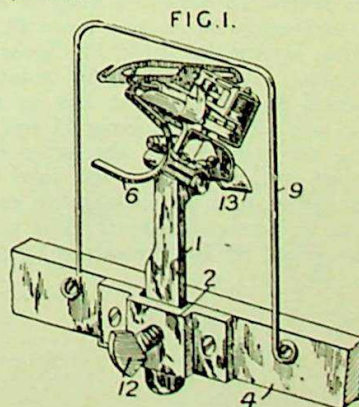
with relation to the lever 144 by means of the screw 139. The lower end of the finger 170 rests against a thimble 157 which is pressed outwardly by a spring 160 and slides in a bushing 151 screwed in the lever 144 and provided with a fixed ram 154. A recess 145^a in the lever 144 holds filtering-material and is supplied with oil which passes through the passages 149, 150 and ports 155, 156 in the bushing to the interior of the thimble. When the finger 170 engages the shoulder 104, its lower end pushes in the thimble 157 which gradually closes the ports 156 whereby an oil-cushioning effect is produced and the shock of stopping the shaft is absorbed. Oil is supplied by a small pump in the base of the machine through the pipe 11 to a pocket in the housing of the clutch, overflowing through the pipe 90 to the recess 145^a in the lever 144.

169,875. Bann, H. July 31, 1920.



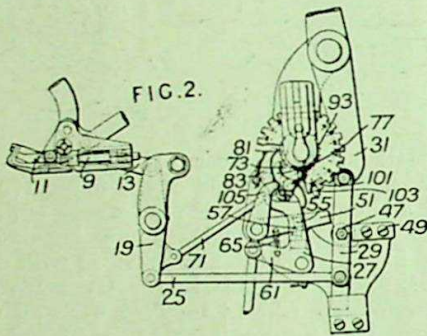
Needle-threaders.—A threading-hook *f* is adjustably secured upon a plate *a* in alignment with and above a Y-shaped opening in the plate which serves to guide the hook into the eye of a sewing-machine needle. The plate *a* may be guided in a groove provided in the sewing-machine work-plate.

170,370. Coombes, W., and Pare, F. W. July 16, 1920.



Knot-tying devices.—A knot-tying device of the kind described in Specification 18778/00 or Specification 2311/03, is provided with a spring which returns the actuating-lever 6, after being released, to its upper position in readiness for the next operation. A buffer plate 13 provides a stop for this return movement. The knotter is mounted upon a holder 1, secured upon a bar 4 by means of a saddle plate 2 and a thumb-screw 12. A guard 9 protects the operator.

170,409. Gouldbourn, J., Woodcock, R. B., and British United Shoe Machinery Co., Ltd. July 21, 1920.

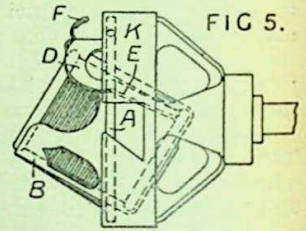


Sewing-machines; trimming or cutting.—Welt-slashing mechanism, provided with a counting-device for determining the number of slashes to be made before the mechanism is thrown out of action, is arranged so that the throw-out mechanism cannot be prevented from operating, and is provided with re-setting means for the counting-device. The welt-slashing knife 11 is carried by a bar 9 actuated from a cam through mechanism 31, 29, 25, 19, 13. The member 29, during part of the stitching action, oscillates idly about the pivotal connection 27 with the link 25 and oscillates about a bowl 47 as pivot, to operate the knife 11, when a lever 51 is lowered into position opposite an abutment 49. The lever 51 is so lowered by a spring 65 when a treadle-operated lever 61 is turned to remove a stop 57 out of the way of a projection 55 on the lever 51. During the slashing operation, link 71, lever 73, and pawl 77 cause the step-by-step rotation of a ratchet wheel 81 until a part 103 on the wheel engages an arm 105 of the lever 51 and raises it. The spring 65 then raises the lever 61 which, by its upper end, withdraws the pawl 77 and a detent 83, whereupon a clock-spring returns the wheel 81 to its initial position. The initial position of the wheel 81 is determined by a stop 101

upon a notched disc 93 which is adjusted to and locked in a position determining the number of oscillations of the knife 11 before the part 103 reaches the lever-arm 105. When the disc is in zero position the part 103 holds the mechanism permanently out of action and independent of the movement of the lever 61.

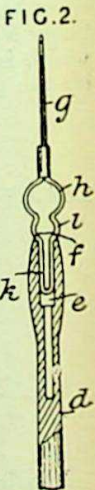
170,483. Cooper, J., and Twin Bobbin Sewing Machine Co., Ltd. Sept. 30, 1920.

Sewing-machines; lock-stitching by hooks.—A spool case B is carried by a plate A running in a race-way provided in the body of a rotary or oscillating hook K. The spool case is provided with a plate D which serves to spread the needle thread loop by engaging with the arm of the loop that passes over the open end of the bobbin case. The plate D may be formed in one piece with the loop-spreading fingers E on the rear side of the bobbin-case and the spool-case detaining-finger F. Specification 134,166 is referred to.

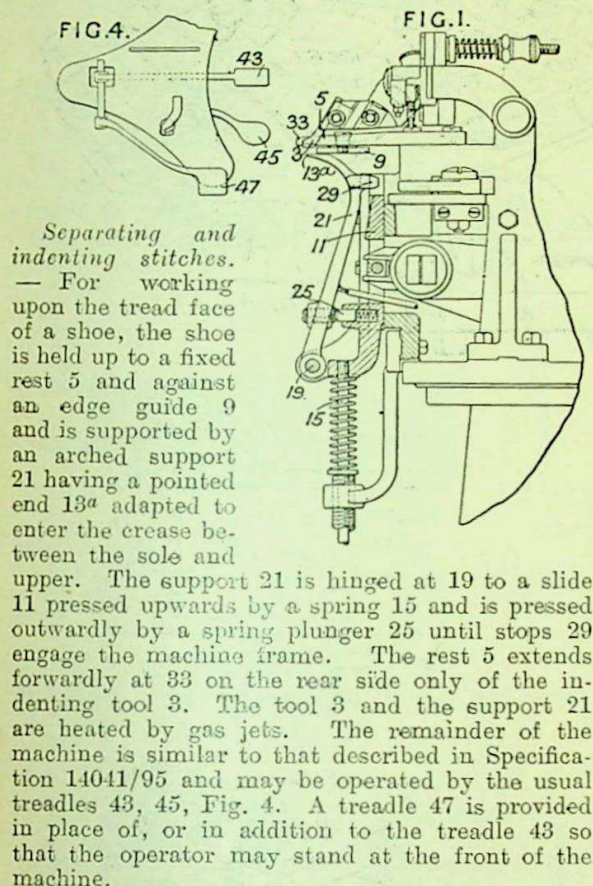


170,553. Waldes à Spol. Oct. 21, 1920, [Convention date]. No Patent granted (Sealing fee not paid).

Crochet hooks.—A hook *g*, a finger rest *h*, a narrower bulge *i*, and a resilient loop *k*, are bent from one piece of wire, as shown. A collar secures the end to the hook shank. The loop *k* is forced into a recess *e* in a handle *d*, and the bulge *i* fits into notches *f* at the end of the recess *e*. When not in use, the hook *g* is put into the handle *d*, the collar fitting into the recess *e*, and the finger rest *h* engaging in the notches *f*.



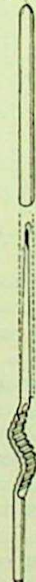
170,661. **Smith, J., Ricks, F., and British United Shoe Machinery Co., Ltd.** July 23, 1920.



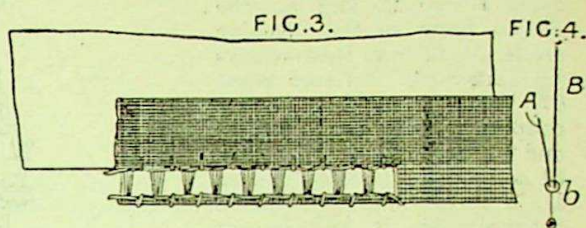
170,755. **Akin, J. H.** Oct. 6, 1920.

FIG. 3.

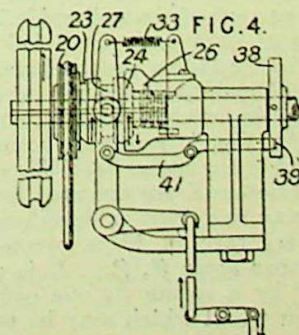
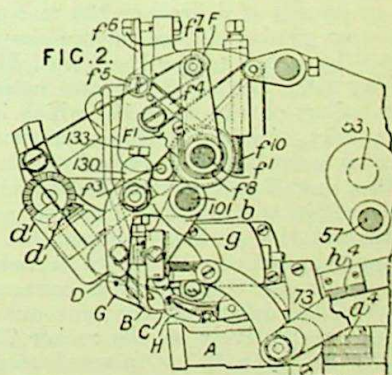
Crochet hooks.—The flattened portion of a crochet-hook shank is serrated and bent into the undulated shape shown.



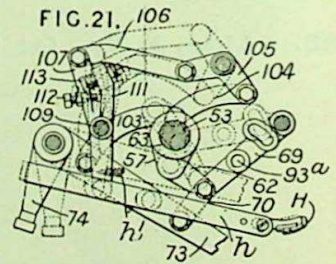
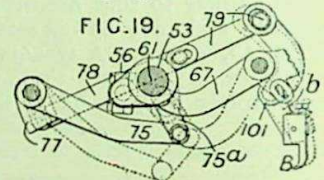
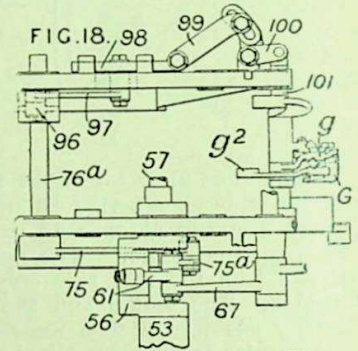
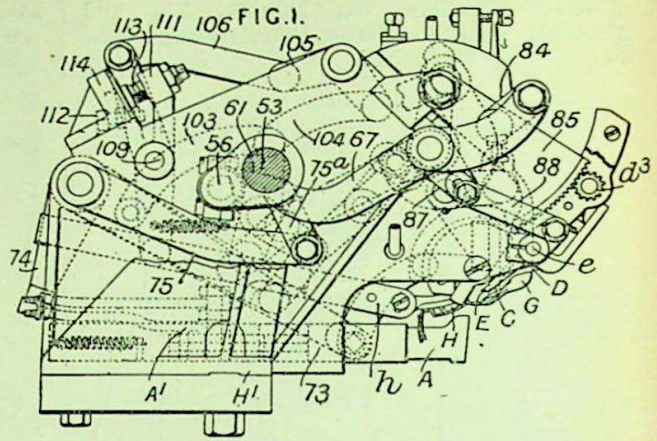
170,761. **Hat Manufacturers' Supply Co., Ltd., Bartle, J. W., and Roberts, S.** Oct. 21, 1920.



170,762. **Jackson, W. J. Mellersh-, (Reece Shoe Machinery Co.).** Oct. 22, 1920.



Boot-sole sewing-machines; welting and turnshoe; chain-stitching.—The main shaft 53 carries two cranks 56, 57, Figs. 1 and 2, and all the driven parts of the machine are actuated from these cranks by link-work. Lever arms 67, 75, Figs. 1 and 19, are coupled together by a link 75^a and to the crank 56 by a link 61 and drive a needle-threader D, a thread-finger E, and a channel-guide B, and impart feeding movement to a feed-dog G. Lever arms 69, 73, Fig. 21, are coupled together by a link 70 and to the crank 57 by a link 62 and drive a curved needle C and a take-up F, control locks on a back-rest A and a welt guide H and impart a welt-feeding movement to the welt guide and up-and-down movement to the feed dog. The needle-threader D is given an oscillatory motion by bevel wheels *d*, *d*¹, Fig. 2, pinion *d*³, Fig. 1, and a toothed segment 85 which is coupled to the rocker 67 by a link 84. The thread-finger E, which co-operates with the needle-threader D, is oscillated about a pivot *e*, Fig. 1, by means of a link 88 having a pin-and-slot connection with an arm 87 on the rocker 67. The channel-guide B, Figs. 2 and 19, is carried by a lever *b* pivoted at 101 and having a pin-and-slot connection with a sliding piece 79 connected by a link 78 to a slotted arm 77 of the rocker 75. The feed-dog carrier *g* is pivoted upon a shaft 101 and is adjustably connected by means of a bracket 130 and screw 133 with a lever *g*² also pivoted on the shaft 101 and connected by a link to the point 93^a, Fig. 21, on the rocker 69. The carrier *a* and lever *g*² turn between collars on the shaft 101 which is reciprocated axially, for the feeding movements, by means of a lever 100, Fig. 18, a link 99, a sliding piece 98, a link 97 and an arm 96 secured upon the shaft 76^a of the rocker 75. The welt guide H is urged toward the work by a spring *h*¹, Fig. 21, and is moved positively backward in each cycle by means of a rocker 105 which is connected by a link 106 to the joint between two links 103, 63 connected, respectively, to the rocker 73 and the crank 57. A lever 107 is pivoted at 109, connected to the rocker 105 by a link 106, and has a screw stop 112 which contacts with a second lever 111 pivoted at 109, the lower arm of which is pivoted to the shank *h* of the welt-guide. The forward movement of the welt-guide is determined by the contact of a spring-stop 113 on the lever 111 with a buffer 114 on the machine frame. The welt-guide H and the back-rest A are intermittently locked by ratchet teeth *h*⁴, *a*⁴, Fig. 2, and pawls H¹, A¹, Fig. 1, which are actuated by cams on an arm 74 of the rocker 73. The curved needle C and the take-up F are operated from the crank 57 in the way described in Specification 107,475. The auxiliary take-up F¹ is pivoted at *f*¹ and moves between stops *f*², *f*⁴. It is urged toward the stop *f*² by a spring *f*³, one end of which is secured in a wheel which may be turned, to ad-



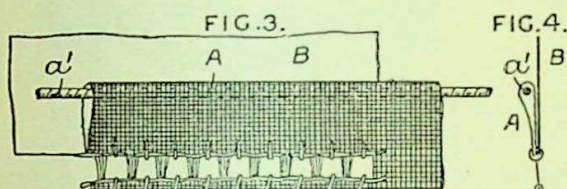
just the tension of the spring, by a screw *f*¹⁰. The stop *f*¹ is made resilient by being pivoted at *f*³ and held in place by a spring-arm *f*⁶ and an adjusting screw *f*⁷. In an alternative mechanism for actuating the welt-guide, the crank 57 is used as a cam to impinge upon a roller which is mounted for adjustment in two directions at right angles upon a lever connected to the shank *h*.

Starting and stopping gear.—A sleeve 27, Fig. 4, feathered on the main-shaft has a cone-clutch surface 23 for engagement with a coned recess in the driving pulley 20, and a coned friction surface 24 for engagement with a brake block 26. When the control treadle is released a spring 33 urges the sleeve 27 to the right, but the movement is

prevented, until a predetermined point in the revolution of the shaft, by a rod 41, which bears upon a disc 38 in which a segmental recess 39 is cut. The brake block is free to turn backward

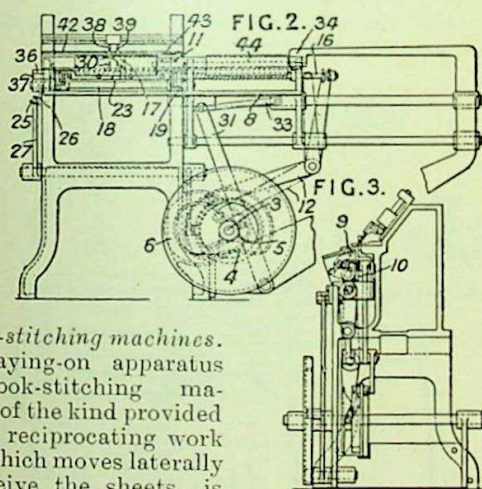
for about one quarter of a revolution against a spring, so that after the machine is stopped the operator may reverse it by hand in order to withdraw the needle from the work.

170,763. Hat Manufacturers' Supply Co., Ltd., and Collyer, W. W. Oct. 23, 1920.



Stitches and seams.—A single strip of tape is used to form a loop for carrying an elastic or other cord and a perforated edge for attachment to a sweat band for hats. The tape A is folded and is fed into a hemstitch sewing machine together with the leather B so that one or both edges of the tape project beyond the leather. The stitches which bind the inner side of the perforations secure the two ply of tape to the leather, forming the loop for the cord a' .

171,364. Stäubli Geb. Nov. 10, 1920, [Convention date].



Book-stitching machines.

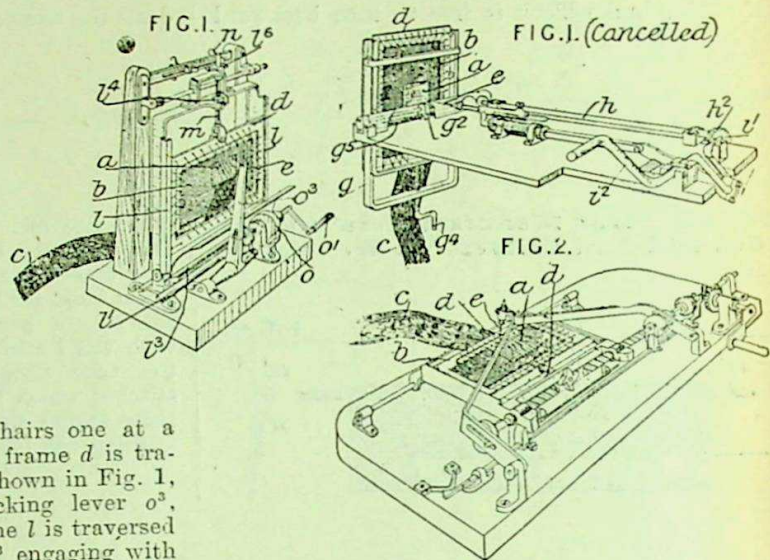
—A laying-on apparatus for book-stitching machines of the kind provided with a reciprocating work table which moves laterally to receive the sheets, is constructed with a table of such a width that it can receive the sheets from the operator while the previously fed sheets are being sewn, these sheets being automatically transferred to the operative part of the table during its reciprocation. As shown in Fig. 2, one set of sheets is supported at the left side of a table 8 formed with sloping sides 9, 10, Fig. 3, over which the folded sheets are placed. While

the sheets 44 are being sewn by upper needles 38, 39, passing through a stitching bar 42, and by piercer needles 30, and a reciprocating bar 16 carrying a thread-looper 17, the operator lays another lot of sheets 44 on the right-hand end of the table 8. As the table moves to the right after the stitching operation a fixed stop 34 prevents the sheets 44 from moving, and they are thus transferred to the front end of table 8. On the return of the table a stop 11, which is formed of a wedge-shape so that it can move under the sheets as the table moves to the right, engages the rear of the sheets and carries them forward to sewing position. An inclined surface 43 on the bar 42 assists to position the sheets accurately on the table 8. The table 8 is supported in its operative position by lugs 36, 37. The movements of the parts of the machine are controlled by cams 4, 5, 6 on a shaft 3 driven through a treadle-operated clutch. The table 8 is reciprocated by a lever 31 and link 33 from the cam 6, and the bar 16 of the looping device which is normally pressed outwards by a spring is actuated by a bell-crank lever 12 and the cam 4. The piercer bar 23 is actuated by arms 19 on a shaft 18 which is oscillated when the table is in the working position by lever mechanism controlled by the cam 5. This mechanism comprises a lever 27 which is oscillated by the cam, and is provided with an aperture for receiving a pin 25 on a lever arm 26 fixed to the shaft 18.

171,389. **Bourgeois, A.** Nov. 9, 1920, [Convention date].

Tufting-machines.—A machine for successively withdrawing single hairs, threads, fibres, &c. from bundles of the same, specially applicable to the making of transformations, comprises a frame *d*, Figs. 1 and 2, with mechanism for traversing the same in two directions at right-angles. The bundle *c* of hair &c. is secured behind a piece of silk gauze *a* which is sewn to a piece of tulle *b* stretched on the frame *d*. A hook *e* is thrust into the bundle of hair and withdrawn, pulling the hairs one at a time through the gauze while the frame *d* is traversed. In the vertical machine shown in Fig. 1, the hook *e* is secured to a rocking lever *o*³, actuated by a crank *o*¹. The frame *l* is traversed in guides *l*¹ by means of a rack *l*² engaging with a worm *o* connected to the crank *o*¹. The frame *d* is moved vertically in the frame *l* at the end of each row by means of spring-controlled stops *n* which engage a star wheel *l*⁶ secured to a screwed rod *m* passing through a fixed nut *l*⁴ on the frame *l* and rotatably connected to the frame *d*. A similar machine horizontally arranged is shown in Fig. 12.

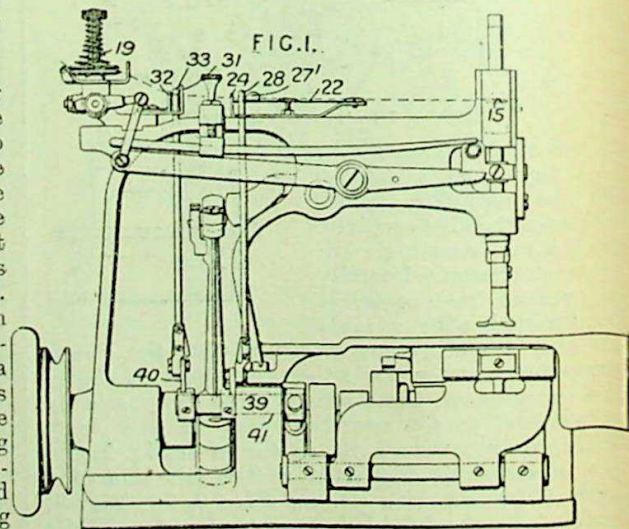
The Specification as open to inspection under Sect. 91 (3) (a) also describes the modification shown in Fig. 1 (Cancelled), in which the



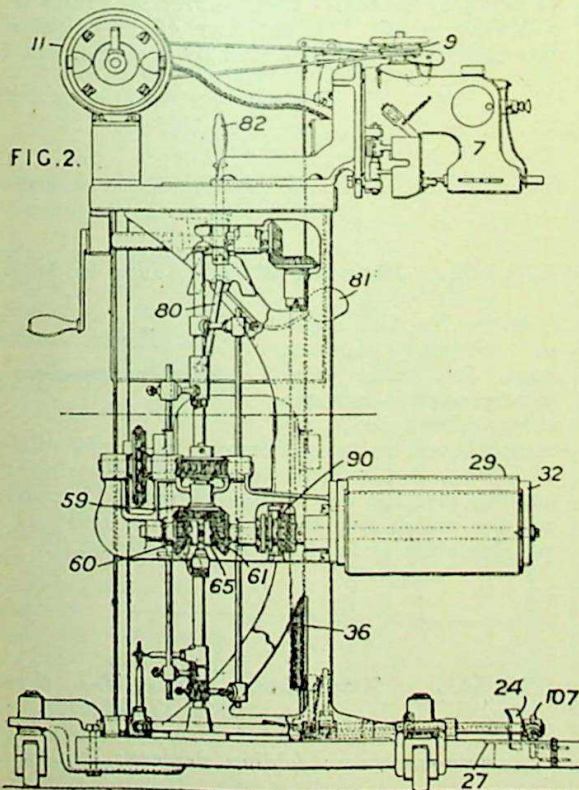
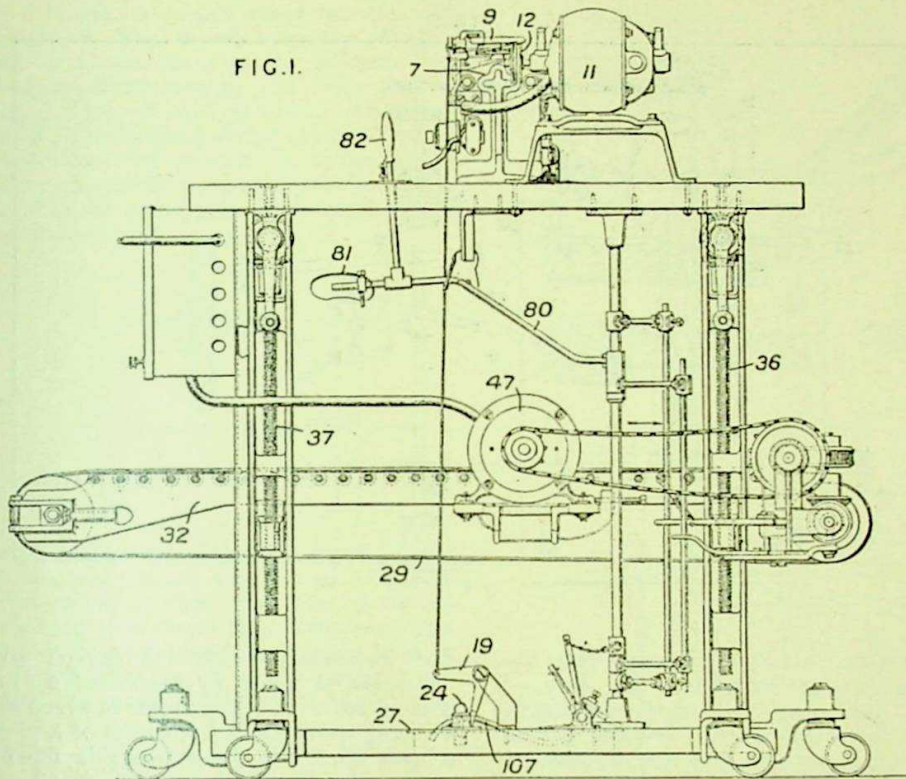
hook *e* is reciprocated by a crank *i*², which also, by means of gearing *i*¹, *h*² and the rod *h*, rotates a screw *g*⁵ which coacts with a nut *g*² secured to a cross-piece on the frame *g* carrying the frame *d*. When a row of hairs has been drawn through the gauze, the crank *g*⁴ is turned to move the frame *d* vertically in the frame *g* to position another row, the crank *i*² being then turned in the opposite direction. This subject-matter does not appear in the Specification as accepted.

171,616. **Fairweather, W.**, (Singer Manufacturing Co.). Nov. 12, 1920.

Multiple-needle machines; chain-stitching; governing needle thread.—In a single or multiple needle machine, a pull-off 33 and a thread-clamp 28 are situated between the tension 19 and the thread-guides 15, and are timed so that the thread-clamp closes after the beginning of the pulling-off stroke. Thereby, the pull-off first takes thread from the needle loop and afterwards draws off from the supply for the next stitch. The pull off comprises a reciprocating bar 33 with a bent-over end, thread eyes 32, and a thread-guiding slot 31. The thread-clamp comprises a bar 28 and a spring plate 22. The threads pass between the bent-over end of the bar 28 and the spring, and are guided by an ear 27¹ on the spring and thread eyes 24. The bars 28, 33 are actuated by lever arms 39, 40 of different lengths and angular positions secured upon an oscillating shaft 41.



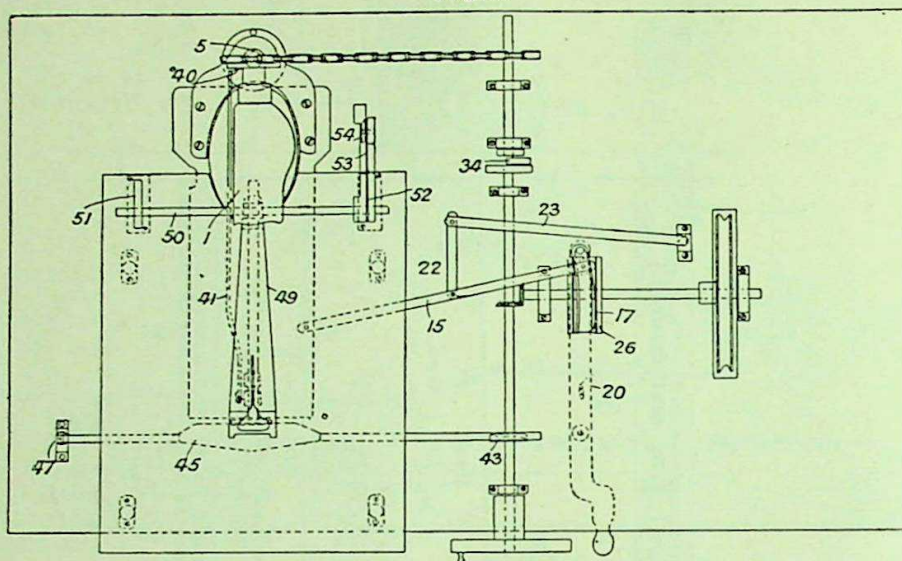
171,812. Fairweather, W., (Singer Manufacturing Co.). Sept. 7, 1920.



Sack-sewing machines.—In a machine for closing the mouths of filled sacks, the sack conveyor 29 and the sewing-machine 7 are driven from separate motors 11, 47 through fast and loose pulleys 9 and a clutch 90 controlled by separate treadles 27, 107 moving in transverse directions. The foot of the operator rests upon a plate 27, and by lateral movement depresses the curved treadle plate 107 controlling the conveyor clutch, and then moves the sewing-machine treadle 24 and control lever 19 laterally. The clutch piece 65 of a reversing-gear 59, 60, 61 is separately controlled by a lever 80 and, by it, the conveyor is reversed by means of the handle part 82, if it is desired to stitch over the sack mouth a second time, and, with the conveyor running reversely, a plate 81 projects into the path of the sacks so that when the sack which has been sewn reaches the plate, the lever 80 is moved and the clutch piece 65 is thrown over either to the forward running position or to an intermediate in-operative position depending upon the position of the plate on the lever 80. The conveyor and its driving gear are mounted on a frame 32, which can be moved vertically by screws 36, 37.

171,861. **Bingham, J., and Heney, W.** Oct. 9, 1920.

FIG. 3.



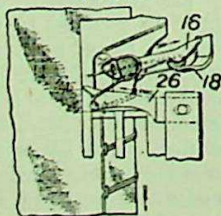
Sewing-machines; needles, vibrating laterally; chain-stitching; presser-bars; feed by dogs.—A framework 1, including the usual overhanging arm, carrying the stitch-forming devices but not presser and feed, is pivoted at 5 and oscillated to produce a zig-zag stitch by means of a switch-cam 26, slotted lever 17 and pitman 15. The amplitude of the vibration is raised by means of a lever 23 and link 22, and the field is varied by moving the pivot of the lever 17 which for this purpose is carried by a lever 20. The needle-bar

and loop-taker shafts are driven with cyclical variations in speed by means of a drag-link connection 34. The loop-taker is given axial needle-avoiding movements by means of a pitman 41 and a cam 40. The presser-foot is fixed to a lever spring 49 secured upon a shaft 50 supported at 51, 52 independently of the framework 1, and can be lifted by means of a cam-lever 54 acting upon a lever-arm 53. A feed-bar 45 is universally mounted at 47 and actuated by a single cam 43.

172,168. **Fairweather, W.,** (Singer Manufacturing Co.). Sept. 27, 1920.

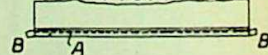
Sewing-machines, loop-stitching. — In an overedge stitching machine comprising the known eyed needle, threaded looper 16, and second threaded looper or loop-spreader 18, the last-formed looper-thread loop is tightened by an additional device 26 moving in the opposite direction to the looper 16 and so that the looper-thread does not reeve upon the limbs of the needle-thread loop. The device 26 is carried by a lever moving in an horizontal plane below the work-plate, and is actuated by a separate eccentric.

FIG. 6.

172,261. **Mason, W. E.** June 14, 1921.

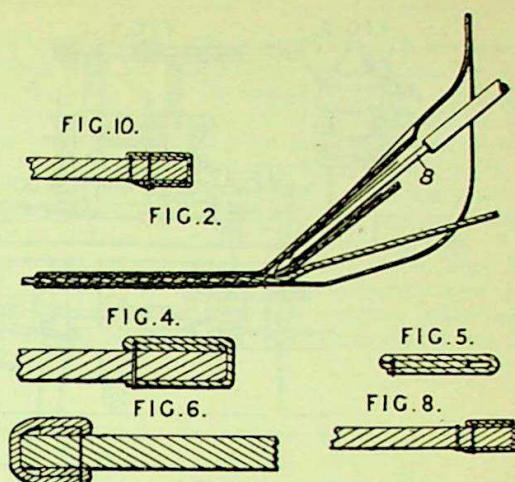
Seams. — The edges of tobacco pouches, bags, &c., made from waterproofed Japanese silk (oiled silk), are strengthened by being hemmed over and stitched to a strip B of ribbon, tape, or paper-string, the stitches piercing the strip as shown. In making up the pouch &c. the stitches are arranged to penetrate the ends of the strip of ribbon &c.

FIG. 1.

172,531. **Thompson, W. P.,** (Union Special Machine Co.). Dec. 17, 1920.

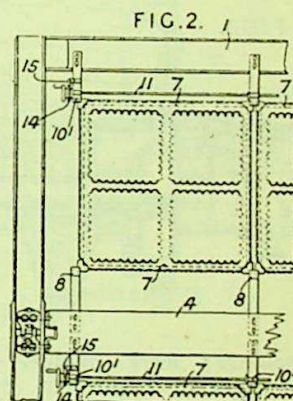
Sewing-machines; folding devices; loop-stitching; seams.—A binding strip, in being applied to

the edge of a fabric, is folded about an obliquely arranged needle 8, Fig. 2, whereby the stitches are disposed as shown in Fig. 4, and are concealed on the upper surface by the outer part of the binding. Figs. 5 and 6 show variations. Figs. 8 and 10 show binding strips secured by two lines of cross-connected stitches in which either one or both needles make concealed stitches. The seam is suitable for attaching a collarette to the neck of a garment.



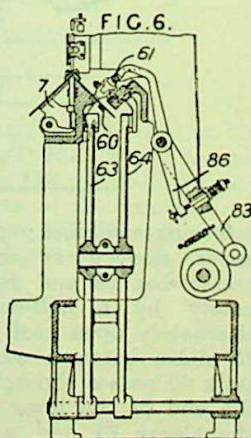
172,598. Bachert et Cie. Dec. 6, 1920, [Convention date].

Embroidery machines.—Square frames 7 are mounted in the main work frame 1 of a shuttle embroidery machine, so that they can be turned to bring each edge uppermost in succession. The frames 7 rest in grooved plates 8, and are held at the top by plates 10¹ secured to the shaft 11 extending across the work-frame. All the frames 7 are released together by turning the shaft 11, and the shaft is held with the plates 10¹ up by means of a ratchet 14 and a detent 15. Two rows of frames 7 are provided, one on either side of a central horizontal bar 4 of the main frame. In use, the upper and lower edges of fabric squares are embroidered simultaneously, as shown, so that the squares are completed with one turn of the work-frame.

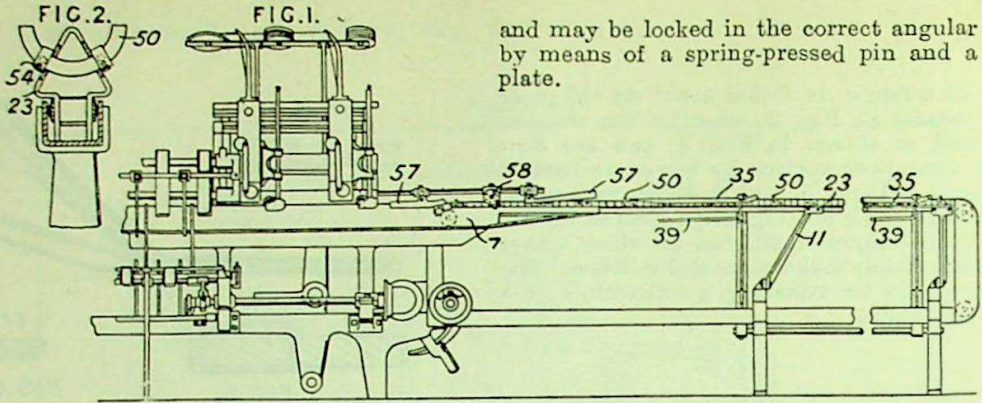


172,684. Rogers, F. H., (Christensen Machine Co.). Aug. 9, 1920.

Book-stitching machines.—Book signatures to be stitched are placed upon V-shaped saddles 35, Fig. 1, under which runs a correspondingly shaped conveyer 23. The conveyer has outstanding detachable pusher pieces 50, Figs. 1 and 2, at intervals which sweep the signatures off the saddles on to the conveyer and the signatures are then carried on to a table 7, being straightened by means of an oblique bar 11 below the conveyer,

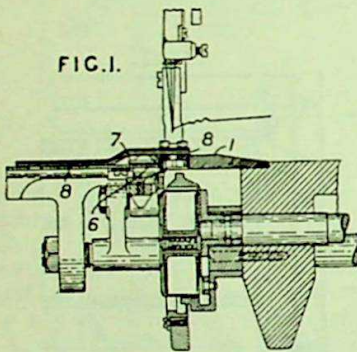


arms 39 on either side of it, and presser plates and wheel 57, 58. The pusher pieces are spaced at alternately shorter and longer distances, so that the stitching of the successive signatures is in staggered relationship for convenience in stacking. The pusher pieces may be fitted with projections 54, Fig. 2, standing forwardly of the main part, and of sufficient width to engage all the signatures. The main part will then serve to position the back of the book so that it overlaps the signatures. The lower part 60, Fig. 6, of one slope of the table 7 is formed by a slide, and is opposed by feed-fingers pivotally or slidably mounted on a second slide 61. The feed-fingers are periodically pressed towards the slide 60 to engage a signature by resiliently connected levers 83, 86, and the slides are moved to feed the signatures by cam-operated levers 63, 64. Change-wheels are provided for driving the conveyer at varying speeds, and include an idle pinion carried by an arm pivoted upon the boss of a driving pinion feathered to the main shaft. The arm may be moved along the shaft to bring the idle pinion into line with any one of a set of wheels,



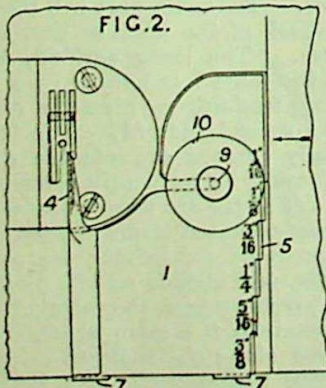
and may be locked in the correct angular position by means of a spring-pressed pin and a stepped plate.

173,274. Marsden, J. Aug. 28, 1920.



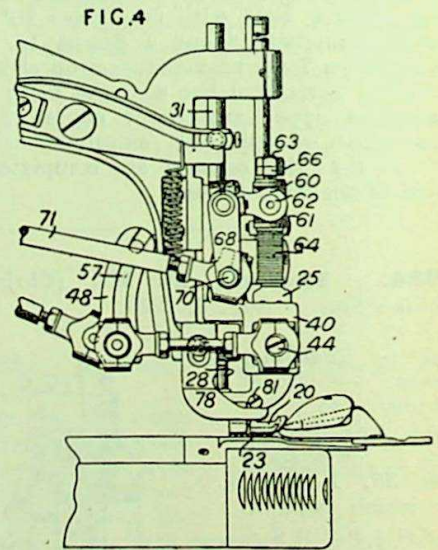
Sewing-machines; work guides.—For use in stitching the edges of a garment 8 to which buttons 7 have been attached, an undercut edge-guide 6 is formed at the edge of a piece 1 which serves as a raised work-support. A guide such as described in Specification 173,275 may be used in addition for the edge of the garment. The shuttle-gear shown is described in Specification 167,693.

173,275. Marsden, J. Aug. 28, 1920.



Sewing-machines; work guides.—A simple work guide 4 is formed as part of a plate 1 secured to the work plate by a screw 9 and spring-washer 10. The plate 1 is guided by a pair of lips 7 and is adjusted in accordance with a series of measured notches 5 on a graduated scale.

173,395. Thompson, W. P., (Union Special Machine Co.). Nov. 16, 1920.



Sewing-machines; feed by devices engaging upper surface of work; presser-bars.—The presser-bar 28 and feed-bar 25 are lifted alternately by a bell-crank lever 60 which pivots alternately upon each of the bars. The feed-bar 25 slides between adjustable plates 40 and its stalk 63 passes through a sleeve 61 pivoted upon the end of the lever 60. A spring 64 between the sleeve 61 and a shoulder on the feed-bar is so proportioned that on the downward movement of the pivot 62 the feed-bar is lowered on to the work, the spring is compressed until its

coils are closed and, thereafter, the pivot 62 provides a rigid pivot for the lever 60 in its further oscillation which therefore effects the raising of the presser-bar. In the return movement, after the presser-bar is returned into contact with the work, the feed-bar is not lifted until the movement of the pivot 62 has permitted the spring 64 to expand and the top of the sleeve 61 has contacted with the nuts 66. The to-and-fro movement is adjusted by means of a lever 48 having an arcuate slot 57 which is concentric with the pivot 44 when the feed-dog is at the beginning of its stroke. The up-and-down move-

ment is similarly adjustable, the slot being concentric with the pivot 70 of the pitman 71 when the feed-dog is in its lowest position. An arm 78 secured to the presser and a pin 81 on the feed-bar prevent the upper feed-dogs from resting on the lower dog 23 when there is no work in the machine. The upper feed-dog 20 has a single row of serrations and the lower one two rows, one on either side of the upper feed-dog. The presser-bar comprises upper and lower bars 31, 28 which are spaced apart laterally and are connected by clamps upon a member which also carries the pivots of the feed-levers 48, 68 and 60.

173,411. Fairweather, W., (Singer Manufacturing Co.). Nov. 29, 1920.

Button-hole sewing-machines; button-holes, cutting.—In a machine using punch and die cutters 82, 87 which remove a narrow strip of material, the strip is pressed through the die and falls either into a trough 109 or an annular dish 112. Thence it is swept by a brush 115 on

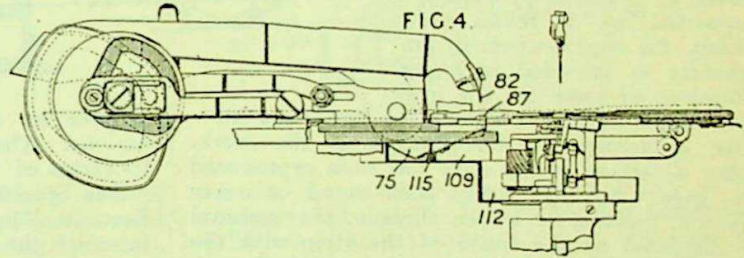
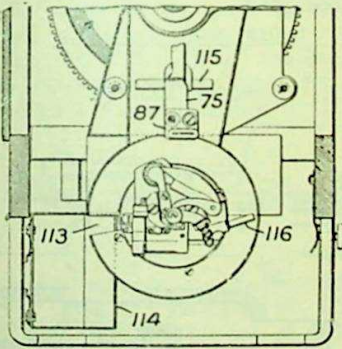


FIG. 8.



the lower cutter lever 75 and a brush 116 on the rotary mount of the lower stitching instrumentalities and falls through a gap 113 in the dish into a receptacle 114. Other parts of the machine are as described in Specification 173,678. Specifications 15049/15, 141,905, 146,587 and 147,300 also are referred to.

173,455. Gardner, R. C., (Higgins, B.). April 4, 1921.

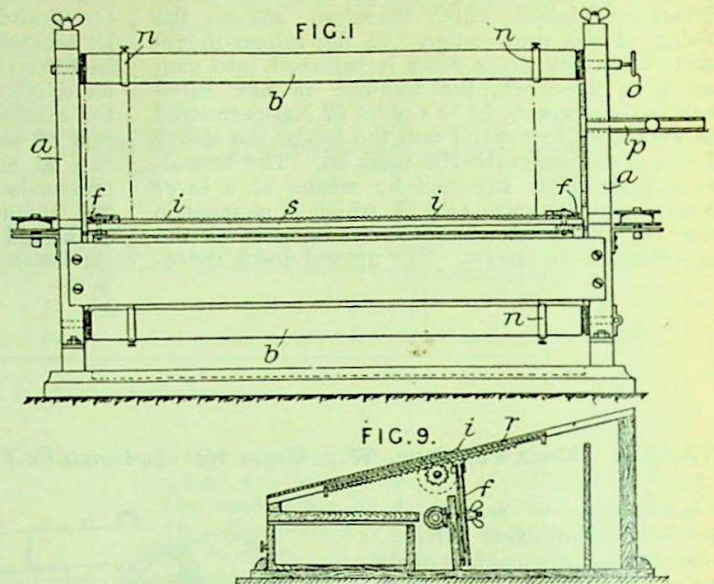
Needle-threaders.—Hooks B, D for drawing threads through needle eyes are formed on a strip of thin steel A and on a smaller strip C stamped out from or attached to the strip A. The strips may be fixed to or pivoted upon a handle.

FIG. 1.



173,509. Piccioni, G. Dec. 27, 1920, [Convention date].

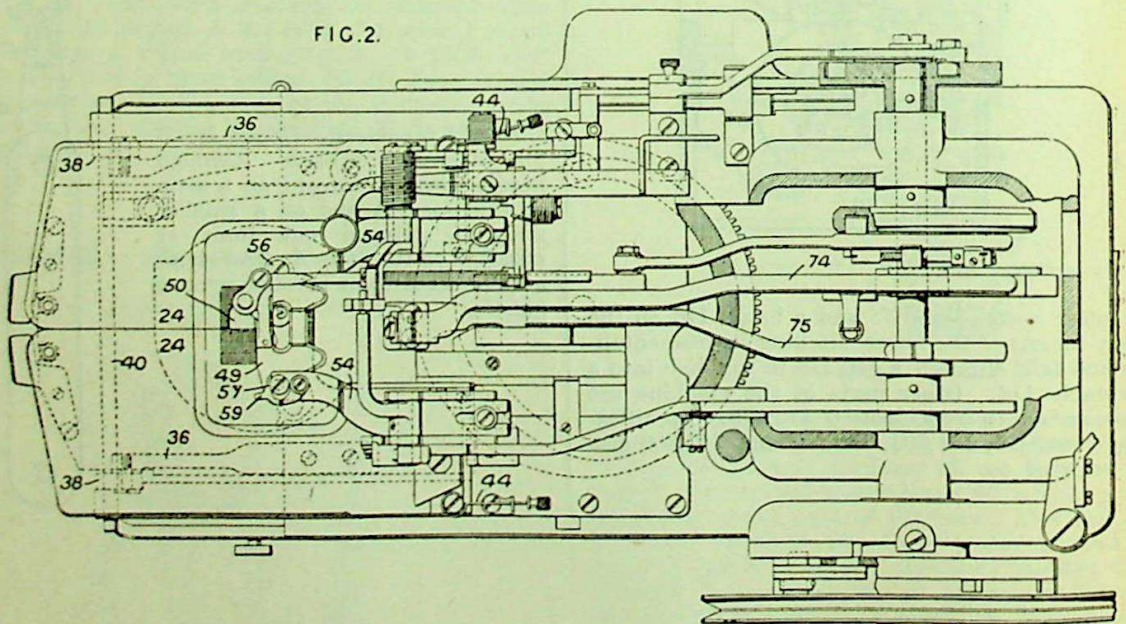
Embroidery.—In a method for reproducing paintings, drawings, prints, &c. by graphic means or by embroidery or the like, an original picture or drawing is cut up into narrow strips which are united end to end to form a long strip which serves as a copy and is caused to pass in front of the surface on which the reproduction is to be made. The strip *s*, Fig. 1, is wound upon spools *f*, and the paper or other material on which the work is executed is carried by rollers *b* which are provided with guiding rings *n* and are adjustably mounted in frame members *a*, the upper roller having a hand-wheel *o*. The copy-strip *s* is supported by a metal bar *i* which, for reproduction in embroidery is provided with perforations or teeth for the insertion of the needles. Behind the bar *i* is a movable guide-member for supporting the work. After a section of the strip has been reproduced on paper &c. by means such as oil or water colours, pastels, or woven threads, the material is displaced by the width of the strip with the aid of a graduated device *p*, and a new length of the strip is brought into position. In a modification, a working-table *r*, Fig. 9, is moved in



grooves in a frame by means of racks and pinions. The continuous strip may be replaced by strips of wood or cardboard.

The Specification, as open to inspection under Sect. 91 (3) (a), comprises also an arrangement in which the picture to be reproduced is strained over a roller, which is rotated at intervals. This subject-matter does not appear in the Specification as accepted.

173,678. Fairweather, W., (Singer Manufacturing Co.). Nov. 29, 1920.

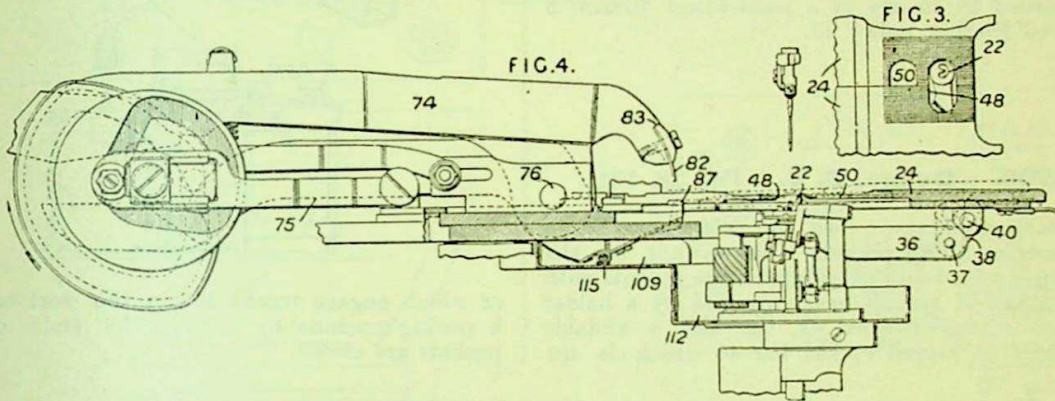


Button-hole sewing-machines; button-holes, cutting.—The work-clamp is lifted clear of the throat-plate in being shifted from stitching

position to cutting position. The machine is arranged for stitching button-holes parallel with the edge of the material, as with the back button-

holes in collars, the feed of the material is transverse to the machine arm and the movement to cutting position is transverse to the button-hole slit. The usual pair of pivoted clamping arms 54, Fig. 2, carry a single upper clamping-member 49 which is loosely secured to them by screws 56, 57. When a latch 59 is opened, the member 49 can be swung about the screw 56 to expose the throat-plate. The lower clamping-member comprises two plates 24 of a known form which are kept in contact with one another at all times by springs 44. The plates 24 are cut to provide

an opening 48, Fig. 3, for the throat-plate 22 and support the work on all sides of the button-hole during stitching and one plate has an opening 50 for the throat-plate during cutting. The usual rod 40 upon which the clamps slide laterally, in this case to effect the feed, is carried by short links 38, Fig. 4, pivoted at 37 on fixed supports 36. When the clamps are moved rearwardly to bring the work to cutting position, the links 38 cause the plates 24 to rise into the position shown in dotted lines so as to clear the throat-plate and then to return into



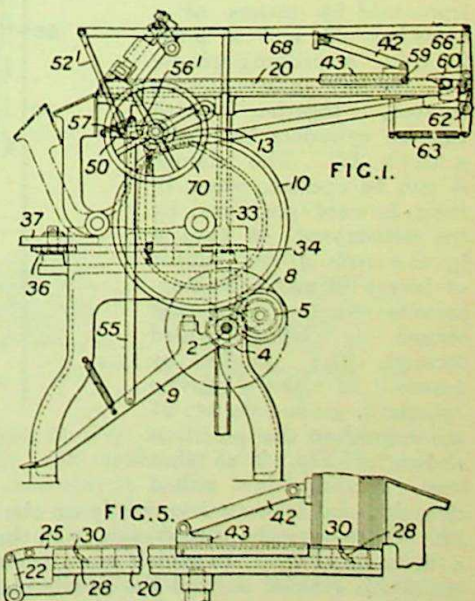
the same place; the throat-plate being received by the opening 50. The cutters are at the same time moved forwardly into cutting position. The cutters, which remove a narrow strip of material, comprise an arcuate plate punch 82 concentric with the cutter pivot 76 and a die 87, and they are mounted upon upper and lower cutter levers 74, 75. The material pressed through the die falls either into a trough 109 or an annular dish 112 and is swept by a brush 115

on the lower cutter lever and a brush on the rotary mount of the lower stitching instrumentalities and falls through a gap in the dish into a receptacle. The back of the punch 82 abuts against a shoulder 83, Fig. 4, which may be provided by the end of an adjustable plate secured upon the cutter lever. Other parts of the machine are substantially as described in Specifications 150,491/5, 141,905, and 146,587.

173,679. Stäubli, H., and Stäubli, R.
Nov. 29, 1920.

Book-stitching machines.—Fastened signatures are supported upon a book-table 20, Fig. 5, provided with feed-bars 25 by which the pile of signatures is positively moved to the left after each fresh signature is secured. The bars 25 are reciprocated by cam-actuated levers 22, are pressed upward by springs and are caused to rise above the level of the table on the leftward stroke by means of pins 30 on the bars which ride up and over inclined guides 28. A support 42, 43 slides freely upon the table and when the table is full is used to trip the stop-gear of the machine. The book-table 20 is carried by a vertical screw 33, Fig. 1, by which and hand-gear 34, 36, 37, the table can be raised and lowered.

Starting and stopping gear.—The machine is driven from a shaft 2, gear-wheels 4, 5, and grooved friction pulleys 8, 10. The pulley 8, with the gear-wheel 5 are mounted at the end of a treadle-lever 9 and the friction-wheels are brought into contact by depressing the treadle.

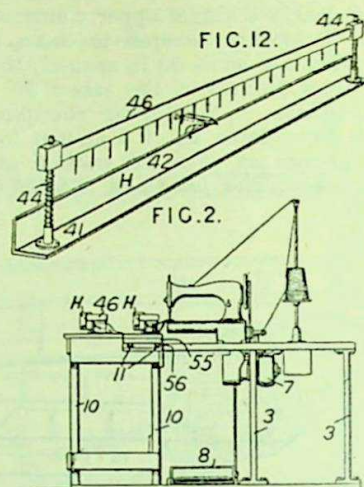


A link 55 is guided in a slot in a stationary arm 50 and is moved to the right by a cam 57 when a stopping rod 68 and a stopping lever 52¹ are moved to the right. In this movement, a cam notch in the rod 55 engages a pin 56¹ in the arm 50 and, thereby, the rod 55 is lifted sufficient to lower the pulley 8 out of contact with the pulley 10. When the work-table is full, a pin 59 on the support 43 engages and lifts a latch 62 so as to release a lever 61. The latter is then turned by a spring 63 and, engaging a lug upon the lever 66 turns it and actuates the stopping rod 68. When the machine is at rest, it may be turned by means of a hand-wheel 70 and a grooved friction pulley 13.

173,708. Genge, F. C. Feb. 28, 1921.

Sewing-machines; feed by clamps.—In a method for filling pockets with springs by the operation of a series of plungers, the pockets with the contained springs are supported by a holder H comprising flanges 41, 42 and a slidably mounted or hinged spiked bar 46 which is de-

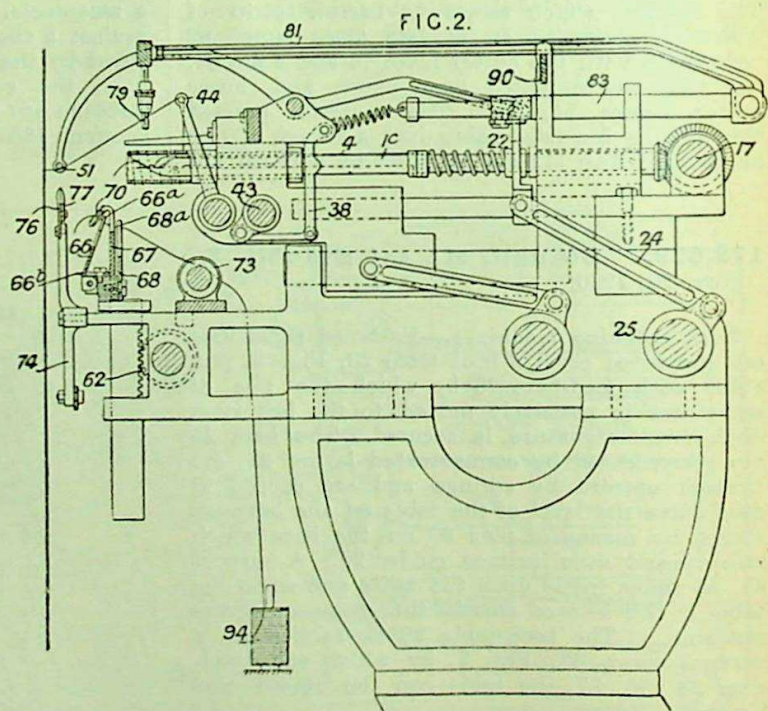
pressed to lock the springs in compressed position in the pockets. The holder with the pockets is transferred to a travelling wagon 55 the wheels.



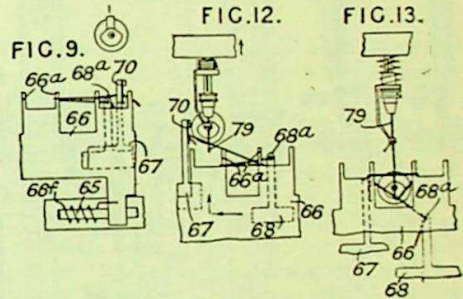
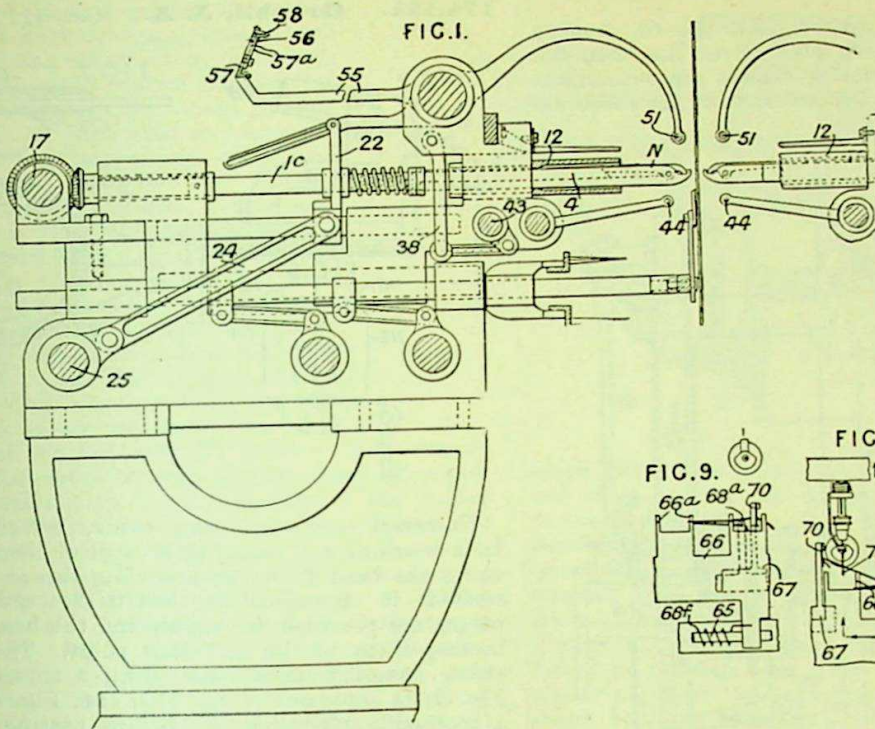
of which engage tracks 11 on the work-table of a sewing-machine by which the ends of the pockets are closed.

173,775. **Eberhardt, H.** Jan. 5, 1921, [Convention date].

Embroidery machines of the Heilmann type, and having revoluble cylindrical take-ups surrounding the needle-clamps, are provided with mechanism for re-threading the needles. The needle-clamps N form part of bars 1^c which are reciprocated by means of a cross-bar 22 and a lever 24 from a rocking-spindle 25, and are intermittently rotated, together with take-up cylinders 12, from a shaft 17. The clamps N can be opened, when in their forward positions, by the withdrawal of keys 4 in the rods 1^c by means of levers 38 and a rocking-spindle 43. When the thread is being pulled through the fabric by means of the take-up cylinders, guide-rods 44, 51 are moved to the positions shown in Fig. 2 so that the thread is pulled straight, and is wound correctly on the cylinder 12. To remove the thread-ends from the needles a lever 55, Fig. 1, to which are attached bands 56, 57, is rotated so that the needle clamp N is reciprocated through holes 57^a in the bands; on



the return of the clamp, the lever is partly raised, and cutters 58 sever the knotted thread loops. Thread from a spool 94, Fig. 2, passes between tension discs 73, through guide-bars 68, between prongs on a bar 66, and is held in a thread clamp



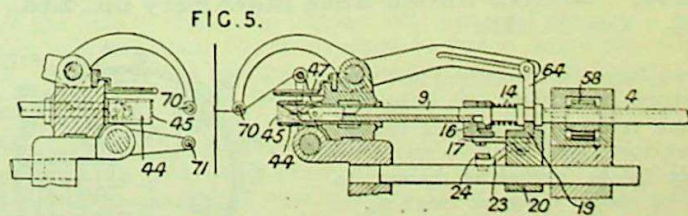
70 on a bar 67. In the threading operation, the bar 66 is moved longitudinally to the position shown in Fig. 9, and is then turned upright by the longitudinal movement of inclined surfaces on a bar 66^b. The bars are then moved to the position shown in Fig. 12. A hook 79, Fig. 2, which is actuated by moving a stepped bar 90 now descends through the needle eye, and draws the thread up through the eye. The apparatus

is then moved to the position shown in Fig. 13. The opposite clamp pulls the needle and thread-end through the thread-loop, and the material to set the knot and winds a thread supply on its cylinder, after which shears 76, 77, mounted on a lever 74, cut the thread, the loose end of which is again held by the clamp 70. Specification 173,776 is referred to.

173,776. Eberhardt, H. Dec. 9, 1921, [Convention date].

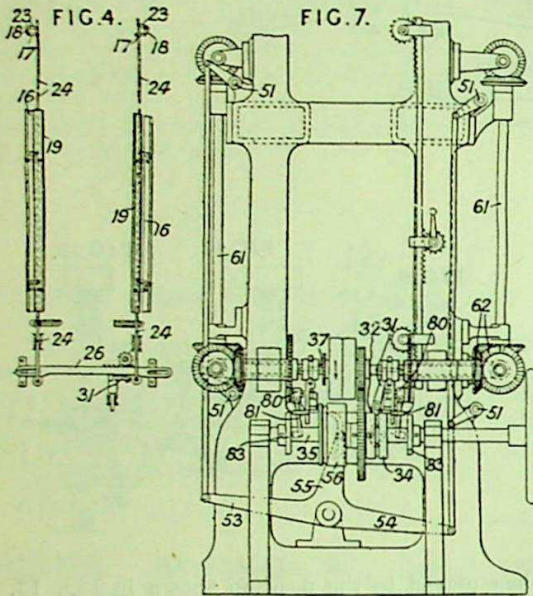
Embroidery machines.—

In Heilmann type machines the threads are pulled through the work by winding them round cylinders surrounding, and rotating with, the needle clamps. The needle-clamping jaws form part of a rod 4, Fig. 5, which is actuated by an angle bar 19, fixed to reciprocating supports 20. The shaft 51, Fig. 7, by which the supports 20 are reciprocated, are oscillated through a three-armed lever 53, 54, 55 from a cam disc 56 on a shaft 35. The clamping jaws 3, 7 are opened by withdrawing a key 9 in the rod 4, Fig. 5, against a spring 14. The key 9 is withdrawn by an angle bar 16, a rod 17, and a bell-crank lever 18, 23 from a bar



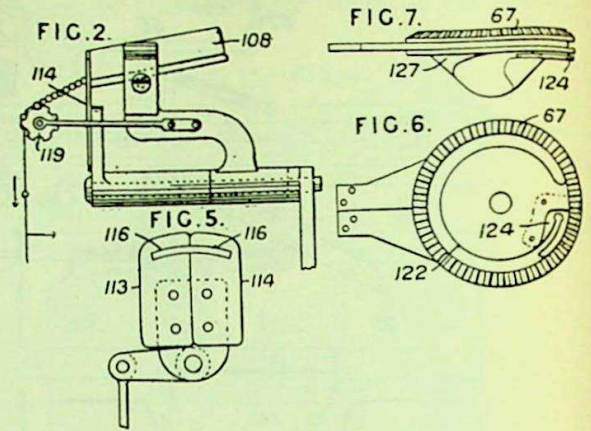
24; the bars 24, Fig. 4, are moved longitudinally by bars 26, and oscillating levers 31, 32 from a two way cam slot in a disc 34, Fig. 7. Switch points in the cam slot are so arranged that the roller takes each path in turn, thus opening the needle-clamps on each side of the fabric in turn. Cylinders 44, with toothed ends 45, are rotatably connected by the keys 9 to the rods 4, which are

intermittently rotated by gears 58—62, from a main shaft 37, which also drives the shaft 35. As the right-hand needle clamps are withdrawn, a thread-guide rod 70, actuated by an extension



64 of the angle bar 19, descends to the position shown in Fig. 5, while another thread-guide rod 71 slowly rises and guides the thread to the surface of the rotating cylinder 44, thus pulling the thread through from the opposite clamp, which is, at the time, stationary.

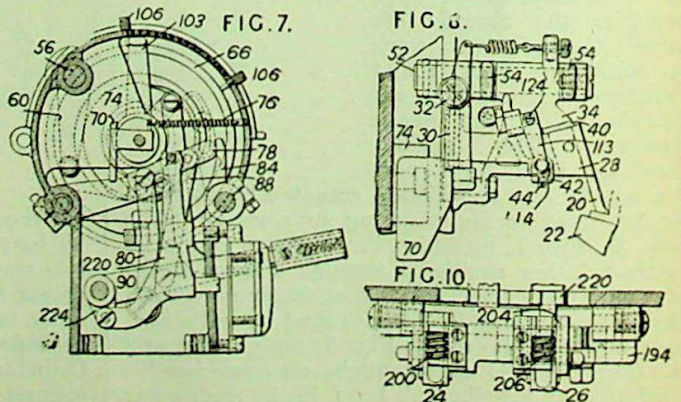
174,141. **Groebli, J. A.** Oct. 11, 1920.



Universal feed machines; cords, attaching.—In a machine for securing strings of beads by using the bead string as a sewing thread as described in Specification 22410/12, additional means are provided for separating the beads and leading them to the stitching point. The bead string passes from a spool along a trough 108, Fig. 2, to separator plates 113, 114, Fig. 5, and a toothed guide-roller 119 before passing vertically down to the looper. The plate 114 is in advance of the plate 113 by the length of a bead and as the plates are oscillated the beads pass the plates one by one. Accurate slots 116 in the plates provide for the free passage of the bead string. Below the looper, the lowest bead rests upon a slotted plate 124, Figs. 6 and 7, at a level just below a plate 122 so that as the looper is oscillated clockwise, the lowest bead passes under the edge of the plate 122 and is isolated. It is positively guided to the stitching point by a scroll-edge cam 127 below the plate 122. The device is rotated as a whole with the feeding-devices by means of a toothed crown 67.

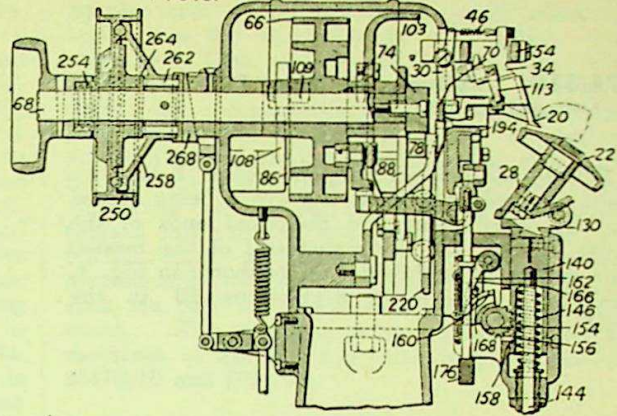
174,164. **British United Shoe Machinery Co., Ltd.,** (United Shoe Machinery Corporation). Oct. 15, 1920.

Separating and indenting stitches.—A stitch-separating and indenting machine is arranged so that the indenting tool, connected to move relatively to its actuating means to allow of stitch interval location, is oscillated both to locate the stitch intervals and to feed the work. In the machine shown, the indenting tool 20 is secured in the holder 28 which is mounted on a vertical pivot in a carrier 30, pivoted by a horizontal pivot-pin 32, to a tool support 34. The outer end of the holder 28 is positioned between an



abutment 40 and guides 42, and is normally held in engagement with an adjusting screw 44 by a spring 46, and kept in central position between the guides by means of leaf springs 113 mounted on opposite sides of the supporting lever and bearing on plungers 114 slidably mounted on the guides. The support 34 is pivotally suspended on a rod 52 fixed in the arms of the yoke formed on the free end of the lever 54, secured to a shaft 56 which is operated through a cam-lever 60 by a driving-cam 66 secured to the main shaft 68. As the support 34 is moved downwardly, the tool 20 comes into contact with the sole edge and the tool with its holder, then rotates about the pivot 32 until the abutment 40 comes into contact with the upper edge of the holder 28, when further downward movement forces the tool into the sole to indent it. During the downward movement of the support 34, the tool is moved outwardly towards the upper to extend the indentation up to the junction of the upper and sole. While the tool is in its indenting position it is reciprocated to feed the work, this being effected by the action of a cam 74, mounted on the driving shaft 68, upon a plate 70 secured to the lower end of the support 34. The plate 70 is urged towards the cam 74 by a spring 76 which retracts the tool after its feeding movement. To control the return movement of the tool and so vary the feeding movement, a rod 78 is provided to engage a projection on the plate 70 as it is drawn backwards by the spring 76, thus freeing it from control by the cam. The forward end of the rod 78 is pivotally connected to a supporting link 80 and the rear end engages a cam plate 84 secured to a shaft 86, the position of the rear end of the plate 84 being adjusted by a hand lever 90, connected to the rod 78 by a link 88. The hand lever 90 also operates a stopping lever 103 adapted to engage pins 106 threaded through openings in the casing. The interval locating vibration of the tool is obtained by oscillation of the rod 78 by means of a cam lever 108, the cam roll 109 being mounted on a pin slidable in an arcuate slot in the lever 108, so that the amplitude of vibration of the tool may be varied. The face of the cam plate 84 is so designed that this variation will be proportional to the variation in the feeding movement of the tool. While the support 34 is being vibrated to locate the tool in the stitch interval, the holder 28 may move about the vertical pivot in the carrier 30, the leaf springs 113, adjustable by a screw 124, allowing the tool to drag on the sole edge until it moves into the stitch interval. The work is supported on a table 22, adjustably mounted in a block 130

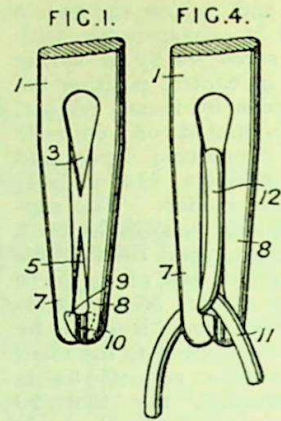
FIG. 3.



which slides in a dovetailed groove in the upper end of the shank 140 to permit of adjustment in the line of feed. The table is urged upwardly against the presser feet 24, 26 by a spring 146, a stop limiting this movement, and a treadle, connected to the rod 144 is provided to lower the table for insertion of the work. During the indenting operation the table is locked in position by a lever 154, provided with a gear segment 156 engaging a rack 158 on the shank 140, and after each feeding stroke of the tool the table is unlocked by a releasing lever 166 which, driven from the main cam 66, operates a number of pawls 162 engaging in a ratchet 160 formed on the rear end of the locking lever 154. The timing of the locking pawls is varied by adjusting the actuating rod 176. The presser feet 24, 26, adapted to engage the sole edge and guide it while it is being indented, are adjustable, vertically to vary the depth of the indentations, and transversely of the line of the feed by screws 200, 206, adapted to receive in their threads, pins which project upwardly from the presser feet. The foot 26, mounted in a vertically adjustable block 204, is arranged to project slightly below the foot 24 and is also adjustable in the line of feed, simultaneously with the adjustment of the feeding movement, by a slide 220 having a pin-and-slot connection with an arm 224 projecting from the hub of the hand-lever 90. To prevent the feet 24, 26 from dragging on the sole edge during the feeding movement, the carrier 194, operated from the main cam 66, is arranged to swing outwardly during the feeding movement and so release the pressure of the feet. The clutch for operating the main driving shaft 68 comprises a vertically sliding block 268, operated by a foot treadle and adapted on being raised to force the pins 262, sliding in the hub of a member 258 secured on the shaft, against a plate 264, and so move the driving pulley 250, against the action of a spring 254, out of engagement with the member 258.

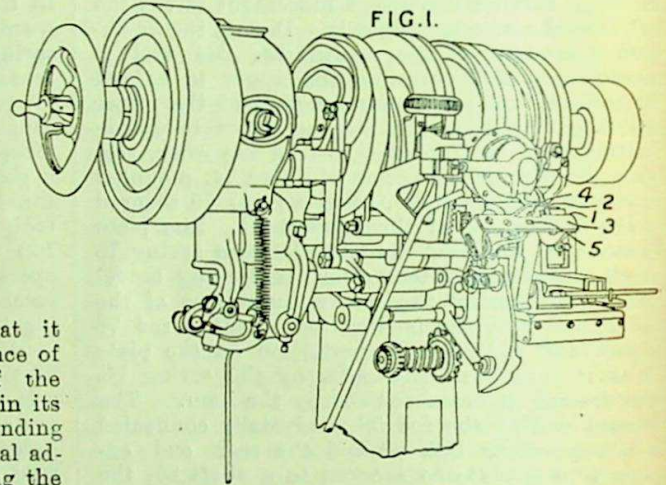
174,319. Allen, D. S. Jan. 17, 1921,
[Convention date].

Sewing-needles.—A surgical needle 1 has two wedge-shaped eyes 3, 5, the eye 5 being joined by the overflapping and re-hooked ends of the parts 7, 8 of the bifurcated end of the needle. The suture 12 is threaded in as shown in Fig. 4, the ends 11 resting in depressions 10 in the split ends 9.



174,419. Reid, R. G., Bates, A., Ricks, F., and British United Shoe Machinery Co., Ltd. Oct. 20, 1920.

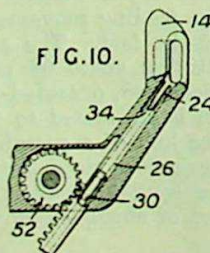
Sewing-machines; suit cases and the like, stitching; work supports; work holders.—Suit cases &c. are stitched in a machine of the kind described in Specification 7793/92 equipped with a work-support 1 having perpendicular guiding-faces 2, 3 with apertures 4, 5 for the passage of the awl and needle. The machine is fitted with a stop-motion which may be as described in Specification 720C/07. The work-support is adjustably mounted so that it can be moved as a whole to vary the distance of the needle penetrations from the edge of the work and various recesses may be formed in its guiding surfaces to accommodate outstanding edges and the like of the work. An additional adjustable rest may be provided for supporting the lower portion of heavy or bulky articles. Expandable frames are used inside the suit cases or the like to hold them in shape. Each seam is stitched over a second time for a short distance at its ends.



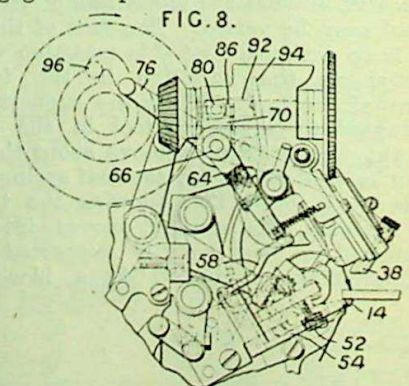
Perforating devices.—The stroke of the awl is adjusted so that the awl does not penetrate right through the materials, the last part of the penetration being made by the needle in entering the work from the opposite direction.

174,440. British United Shoe Machinery Co., Ltd., (United Shoe Machinery Corporation). Oct. 26, 1920.

Sewing - machines; Thread-cutters and thread-end holders.—In a shoe or heavy leather wax-thread sewing - machine, thread cutters and thread-end holders are provided for both needle and shuttle threads. The devices are actuated when a continuously reciprocating lever 76 is coupled to a lever 70 on a shaft 66 by the action of raising the presser. The lever 70 carries a pin 80 normally withdrawn by a spring and when the



presser is raised a plate 92 on the presser lifter 94 engages the pin and moves it into a hole in



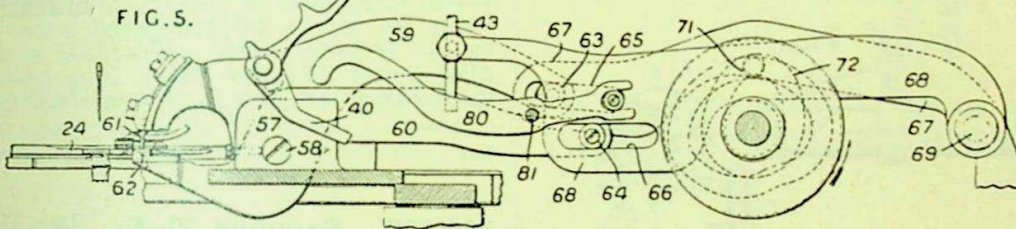
the lever 70. The pin is retained in that position by a locking-pin 86 until the latter is pushed

outwards by a cam-surface. The needle-thread cutter and holder comprises a bifurcated rod 24, Fig. 10, sliding in a sleeve 26, mounted in a guideway in the work support 14 and actuated by a rack and pinion 52 and other linkages 54, 58, 64 from the shaft 66. A pin 30 projecting from the rod 24 slides in a slot in the guideway of the sleeve and limits the movement of the rod. A thread-cutting edge 34 is formed on the sleeve. When the sleeve is first moved upwardly, the rod and sleeve move together and the bifurcated end of the rod moves to embrace the thread. Then the pin 30 prevents further movement of the rod and the sleeve in moving over it, closes the bifurcated end causing it to grip the thread which is then cut by the edge 34. The shuttle-thread cutter and holder 38 is similar, but the cutting-edge is formed on one

arm of the bifurcated rod. The pin 80 carried by the lever 76 engages the lever 70 when the lever is at the low part of the cam. The machine is then stopped, coming to rest with the lever 76 at 96. On restarting, the lever passes into a concentric portion of the cam and, just prior to the completion of one revolution, enters the forepart of the cam and at that time a high part on the periphery of the cam ejects the locking-pin 86. In this way, the threads are engaged and cut and the thread-holders partly withdrawn again for the first revolution in the next operation and the thread-ends are held until after the setting of the first stitch. The invention is shown as applied to machines of the type described in Specifications 23478/10 and 1021/14.

174,809. Fairweather, W., (Singer Manufacturing Co.). Nov. 29, 1920.

FIG. 5.



Button-hole sewing-machines; button-holes, cutting.—Punch and die cutters cutting a button-hole at a distance from the stitching position are associated with stitch-forming mechanism such as described in Specification 15049/15. The cutters 61, 62 are operated positively in both cutting and disengaging. The cutters are carried by levers 59, 60, pivoted at 58 on a slide 57 and having bowls 63, 64 which engage in slots 65, 66 in levers 67, 68 pivoted at 69 and oscillated positively in both directions by means of cam grooves 71, 72 in a pair of discs. The cutters are shown applied in a machine, as described in Specification 173,678, which sews a button-hole disposed transversely of the

machine and in which the work-clamp is lifted clear of a fixed throat-plate in moving between cutting and stitching positions. In its idle position, the lower die-cutter rests above the level of the lower clamping plate 24 and is depressed below that level prior to the cutters being moved forward to cutting position. The downward movement of the cutter lever is communicated to a lever 80 pivoted at 81, and is used to cause that lever to turn the clamp-closing lever 40 to close the work-clamp. An extension of the lever 67 is connected to a rod 43 which actuates an adjustable lever and a thread rim as described in Specification 142,561. Specifications 13429/01 and 146,587 also are referred to.

174,921. Singer Manufacturing Co., (Assignees of Allen, E. B.). Feb. 5, 1921, [Convention date].

Button-hole sewing-machines.—A machine for making barring stitches for a previously stitched button-hole is provided with a gauge, for positioning the work, which is automatically withdrawn when the machine starts its operation. The gauge is in the form of a blade or pin 28 extending from a platform 29 adjustably secured to a slide bar 31, which is mounted under the restraint of a spring 37 upon the bar 15 carrying the lower work-plate 17. The pin 28 projects through a slot in the presser-foot 21 connected with the bar 15 by the arm 23. Lateral and longitudinal move-

FIG. 1.

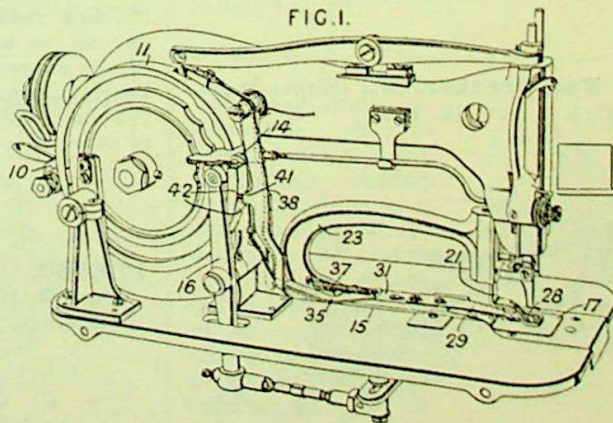
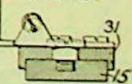
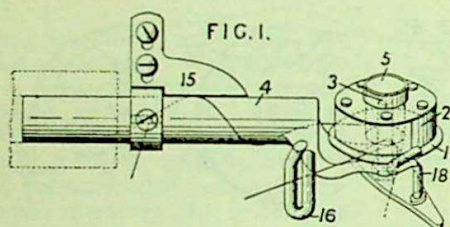


FIG. 6.



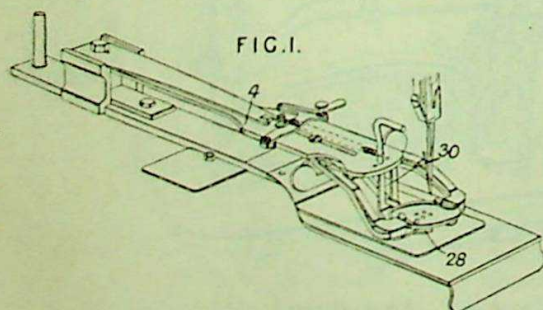
ments for producing a set of long stitches transverse to the button-hole and short stitches across these are communicated to the bar 15 by levers 16, 14 engaging cam-grooves in the feed-wheel 11. The bar 31 carries a rearward extension 35 engaging a lever 38 with a nose 41 thereon which lies in the path of a stud 42 on the periphery of the wheel 11 and is engaged thereby, when the machine is arrested with the needle raised, by the stop-motion device 10. The bar 31 and gauge 28 are thus moved forward to gauging position but are withdrawn by the spring 37 when the pin 42 leaves the nose 41 on the restarting of the machine.

175,096. Spencer, W. H. C. Nov. 20, 1920.



Sewing-machines; waxing and lubricating thread.—A waxing and lubricating device for yarns or threads comprising a disc 1 and a waxing-member 2 between which the yarn passes is mounted in a winding-machine upon a rod or stem 4 which may be adjusted so that the device may assume different angular positions to vary the pressure of the waxing-member on the disc. The hub 5 of the disc is mounted on a pin 3, or between centres in the bifurcated end of the rod 4. The yarn passes through a knot and ravel detector plate 15, around the rod 4 to tension it, and then between the waxing member and the disc and through a fixed guide 16 or through a guide 18 on an arm adjustable about the centre of the disc.

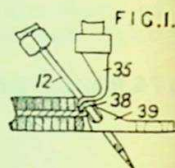
175,386. Fairweather, W., (Singer Manufacturing Co.). Nov. 12, 1920.



Button-attaching machines.—A button-holding clamp of the kind described in Specification 115,362 is provided with a presser-plate 30 secured upon the arm 4 of the clamp and formed with a circular foot 28 which rests upon the fabric and prevents the latter from forcing a thick button out of the clamping-jaws.

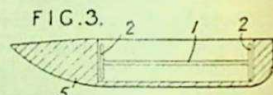
175,433. Soc. Anon. Maquinas Reforzadoras de Alpargatas, Alonso, F., and Salvarrey, J. Nov. 23, 1920.

Boot-sole stitching and assembling machines.—In stitching canvas uppers to coiled rope or like soles, the outer coil 38 is bent as shown in Fig. 1 by means of a guide finger 35, and is penetrated by an inclined needle 12. After penetrating the work, the needle passes into a needle-guide 39.

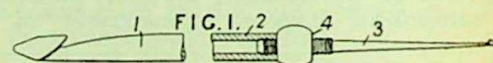


175,498. Campion, E. E. Dec. 29, 1920.

Lock-stitching by shuttles.—A bobbin consists of a thin wire spindle 1, the ends of which form spiral flanges 2. The bobbin fits within the shuttle 5 and rotates on its flanges 2.

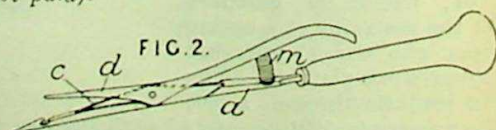


175,522. Robinson, M. B. Feb. 7, 1921.



Crochet and like hooks.—In a combination crochet hook for relatively coarse or fine work, the fine needle may be turned round, when not in use, so as to extend within the handle part of the coarse needle. The needle 1, which may be of vulcanite, is formed hollow at 2 to receive the fine needle 3, which is provided with a screw or other reversible mounting 4.

175,850. Leeming, J. T., and Jones, J. Dec. 29, 1920. No Patent granted (Sealing fee not paid).

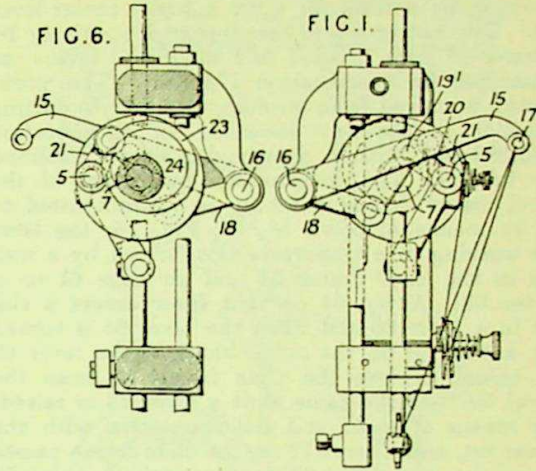


Hand sewing-tools.—The shank *a* of a barbed latch-needle for rug-making has a sloping rib *c*, to which is pivoted a grooved latch-member *d*, normally pressed against the rib *c* by a spring *m*.

a final slow stitch-setting movement. the eccentric 24 may be revolvably adjusted about the shaft

175,932. Fairweather, W., (Singer Manufacturing Co.). July 12, 1921.

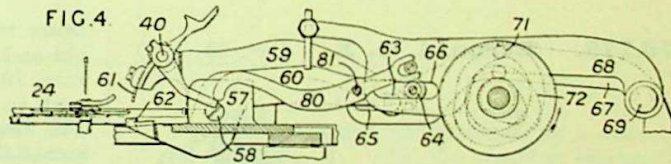
Sewing-machines; governing needle thread.—A take-up arm 15 is mounted on a pin 16 and is rigid with a second arm 18. The arm 18 is linked to a lever arm 20 pivoted upon the needle-bar driving crank-pin 5 and a second arm 21 rigid with the arm 20 is pivotally connected to a strap 23 revolvably mounted on a fixed eccentric 24. The pin 19¹ describes a re-entrantly curved path and serves as a crank-pin, for actuating the take up, the effective crank-arm of which varies during each revolution so as to produce in the take-up an initial rapid paying-out movement, a dwell whilst the loop-taker is engaging the needle loop, a second rapid paying-out movement whilst the loop-taker is expanding the needle-loop, a rapid take-up movement, and



7 and may be of variable eccentricity. Other means may be used for determining the path of the pin 19¹.

175,944. Fairweather, W., (Singer Manufacturing Co.). Nov. 29, 1921.

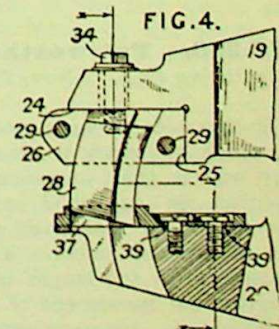
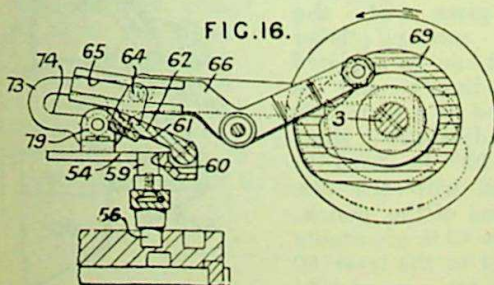
Button-hole sewing-machines; button-holes, cutting.—Punch and die cutters 61, 62 cutting a button-hole at a distance from the stitching position are operated positively in both cutting and disengaging. The cutters are carried by levers 59, 60, pivoted at 58 on a slide 57 and having bowls 63, 64, which engage in slots 65, 66 in levers 67, 68 pivoted at 69 and oscillated positively in both directions by means of cam-grooves 71, 72 in a pair of discs. The cutters are shown applied in a machine, as described in Specification 173,678, which sews a button-hole disposed transversely of the machine and in which the work-clamp is lifted clear of a fixed throat-plate in moving between cutting and stitching posi-



tions. In its idle position, the lower die cutter rests above the level of the lower clamping plate 24 and is depressed below that level prior to the cutters being moved forward to cutting position. The downward movement of the cutter lever is communicated to a lever 80 pivoted at 81 and is used to cause that lever to move the clamping-lever 40 to close the work-clamp. The cutter shaft is operated as described in Specification 146,587.

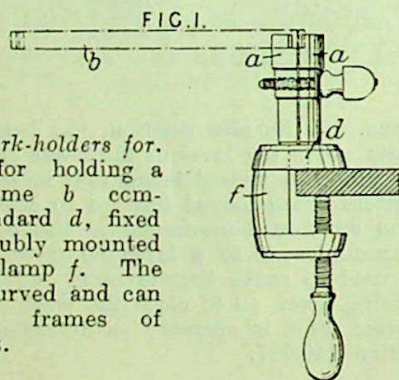
176,108. Fairweather, W., (Singer Manufacturing Co.). Nov. 29, 1920.

Button-hole sewing-machines; button-holes, cutting.—A button-hole cutting punch 28, Fig. 4, is curved edgewise so as to be concentric with the pivot of the cutter-levers and is of a uniform cross section corresponding to the shape of the button-hole. It is held between a pair of recessed clamping-



plates 26 secured together by screws 29 and secured to the cutter-bar by a screw 34 which holds the clamp against the walls 24, 25 on the upper cutter-lever. The cutting die 37 is secured by screws 39 upon a lower cutter-lever 20. The cutter-levers are actuated positively by means of cam grooves and auxiliary levers as described in Specification 174,809. The work-clamp is moved from stitching position to cutting position in the way described in Specification 146,588 but with a disengaging device modified as follows. The longitudinal movement of the work-clamp during stitching is communicated to it by means of bowls 56, 59, Fig. 16; the bowl 59 working in a transverse slot formed by a wall 60 in the slide frame 54 and an edge 61 on a lever 62. A pin 64 on that lever enters a slot 65 in a lever 66 and when the lever 66 is turned by a cam 69 on the cutter-shaft 3, the lever 62 is raised to free the slide frame 54 from the bowl 59. At the same time a lever 73 is raised, by means of a pin and slot connection with the lever 66, and a bowl 79 on the slide frame passes from the main part to a cross-part of a slot 74 in the lever 73. The lever 73 is then moved by a cam on the cutter-shaft to carry the slide frame and work-clamp to cutting position and back again. The pieces of material removed by the punch are cared for in the way described in Specification 173,411.

176,179. **Bernard, G. E.** Dec. 22, 1920.

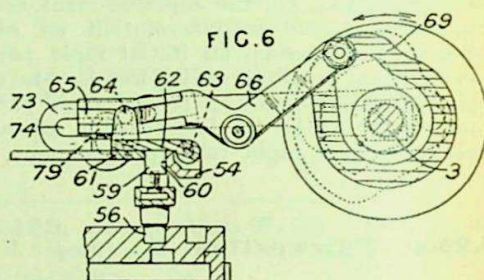
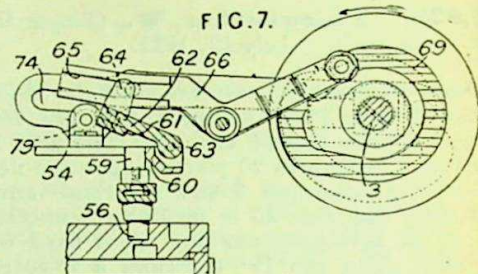


Sewing, work-holders for.—A clamp for holding a tambour frame *b* comprises a standard *d*, fixed to, or revolvably mounted in, a table clamp *f*. The jaws *a* are curved and can accommodate frames of different sizes.

176,296. **Fairweather, W.**, (Singer Manufacturing Co.). Nov. 29, 1920.

Button-hole sewing-machines.—In a machine in which the work is clamped in stitching position and is then moved rearwardly into cutting position as described in Specification 147,588, the device for disengaging the work-clamp from the feed-wheel includes a lever having its pivot transverse to the length of the button-hole. The longitudinal movement of the work-clamp during stitching is communicated to it by means of bowls 56, 59, Fig. 6; the bowl 59 working in a

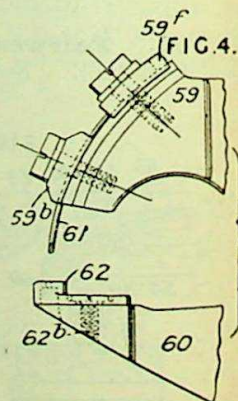
transverse slot formed by a wall 60 in the slide-frame 54 and an edge 61 on a lever 62 having a transverse pivot 63. A pin 64 on the lever 62 enters a slot 65 in a lever 66 and when the lever 66 is turned by a cam 69 on the cutter-shaft 3, the lever 62 is raised, as shown in Fig. 7, to free the slide-frame 54 from the bowl 59. At the



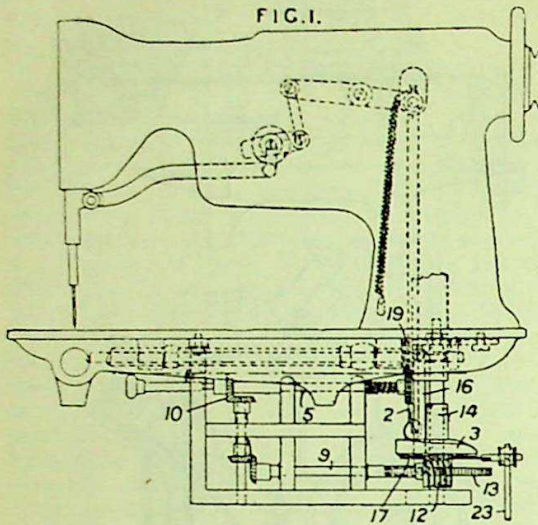
same time, a lever 73 is raised by means of a pin-and-slot connection with the lever 66, and a bowl 79 on the slide-frame passes from the main part to a cross part of a slot 74 in the lever 73. The lever 73 is then moved by a cam on the cutter-shaft to carry the slide-frame and work-clamp to cutting position and back again. The work-clamp is substantially as described in Specification 141,888.

176,299. **Fairweather, W.**, (Singer Manufacturing Co.). Nov. 29, 1920.

Button-hole sewing-machines; button-holes, cutting.—A cutting-punch 61 is of uniform cross-section and is curved concentric with the pivot of the cutter-carrying lever 59. It can be adjusted longitudinally and is clamped by a plate 59^b. An adjustable abutment 59^f is fixed in contact with the rear end of the punch. The die 62 is adjustably secured to the lever 60 by the two screws 62^b.



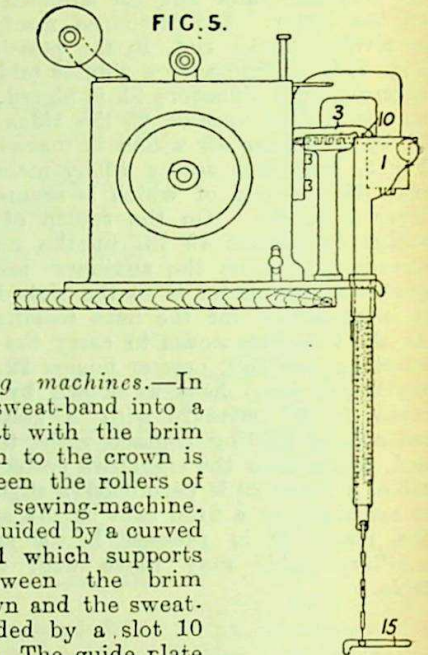
176,657. Somerset & Co., Ltd., T., and Mahood, V. Feb. 28, 1921.



Sewing-machines; needles, vibrating laterally.
—A cam 3, interposed between the knee-lift lever 23 and its operating-rod 2, is used to impose automatic variations of the needle upon the variations obtained by means of the knee-lever. The cam is slidingly mounted on a spindle 14 and rests upon a U-shaped plate 17, forming one arm of the knee-lever, so that it can transmit the movements of the knee-lever. To actuate the rod 2 independently, the cam 2 is rotated from worm gear 12, 13 by means of a rod 16 fixed to the wheel 13 and to an arm on the upper end of the shaft 14, and passing through a perforation in the cam. The worm 12 is driven

through gear 9, 10, 5, and 19 and may be put out of action by shifting the shaft 5 axially to separate the gear-wheels 19.

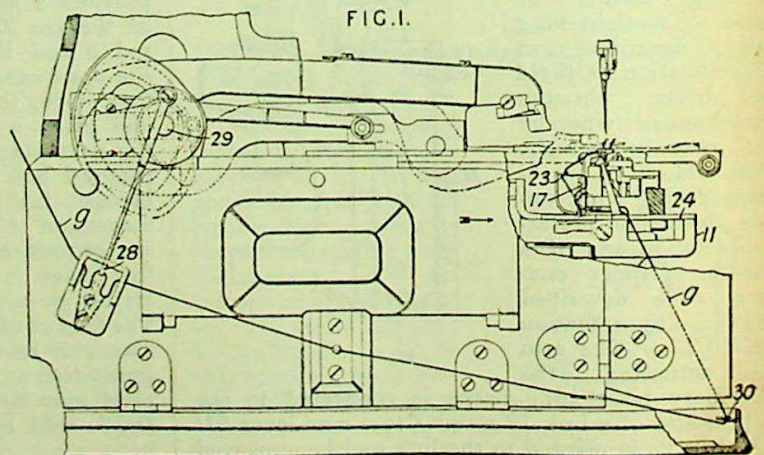
176,904. Preattoni, C. Dec. 17, 1920.



Hat-sewing machines.—In stitching a sweat-band into a hat, the hat with the brim bent back on to the crown is passed between the rollers of an overhead sewing-machine. The hat is guided by a curved guide-plate 1 which supports the hat between the brim and the crown and the sweat-band is guided by a slot 10 in a guide 3. The guide plate 1 may be lowered by means of a treadle 15. For stitching upon caps, kepis, and military caps, an extra supporting-surface is provided on the guide 3.

176,993. Fairweather, W., (Singer Manufacturing Co.). Feb. 1, 1921.

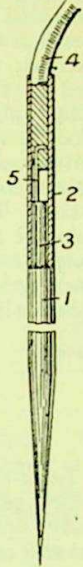
Button-hole sewing-machines.—In a machine in which the lower stitch-forming devices are carried by a rotary turret, a gimp-thread is guided to the underside of the work near to the stitching point without passing up a central tube of the turret. The gimp-thread *g* passes from a pull-off 28, actuated from the cutter shaft 29, to a guide-eye 30 thence over the edge of the guard ring 24 of the turret 11 under a tension plate at 17, through the eye of a spring take-up 23 and to the usual gimp-thread guiding aperture in the throat-plate. The eye 30 is placed so that the turret oscillates equally on either side of it.



177,070. **Souttar, H. S.** April 7, 1921.

Needles which hold the thread end by clamps and the like.—A surgical needle 1 is reduced at 3 to take a tube 2 of the same outside diameter as the needle 1. The thread 4 is inserted into the tube, and secured by pressure, cementation, or by a hook 5 on the end 3, so as to be a continuation of the needle.

FIG. 4.

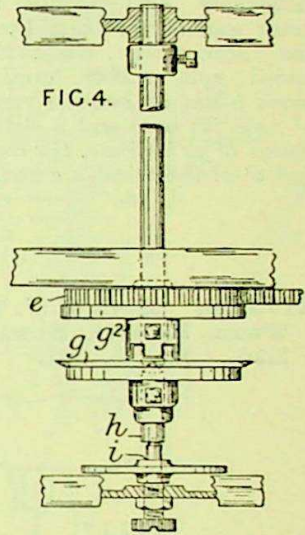


the stroke of the rod 18 can be varied by means of a lever 37. A dog clutch 32, 33 is interposed between the drive 23 and the roller 8.

177,369. **Taylor, T., Winstanley, J. H., and Rooney, J. H.** Feb. 25, 1921.

Sewing-machines; trimming or cutting.

—In a piece-end sewing machine, the inner cutter-disc *g* is mounted on a short shaft *h* which can readily be removed by slacking back the screw *i* which provides one of the cone bearings for the shaft. The cutter is driven through a dog clutch *g*² from a gear-wheel *e*.

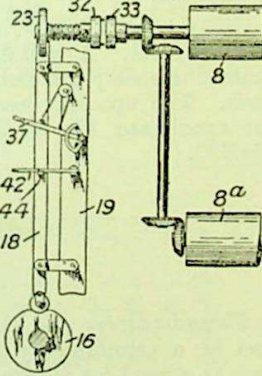


177,317. **Disney, L. S.** Jan. 26, 1921.

Embroidery machines.

—Rollers 8, 8^a, situated between the thread spools and oscillating take-up devices, positively feed the threads to the needles, during their forward stroke, at the speed of the movement of the needles. A rod 18, reciprocated vertically by a cam 16 actuates a wheel 23, which, through a ratchet clutch, imparts intermittent unidirectional motion to the roller 8. The rod 18 is linked to a standard 19 and can be held inoperative by a lever 42 engaging a projection 44;

FIG. 2.

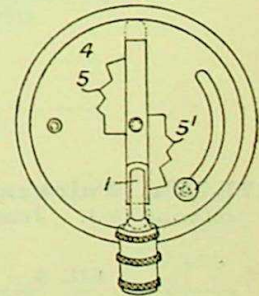


177,390. **Fairweather, W. C.,** (Hexagon Sewing Machine Co.). March 12, 1921.

Sewing-machines;

feed by dogs.—A feed-reversing lever 1 is associated with a stop-plate 4, having two symmetrical series of steps 5, 5¹, which is circularly adjusted to select from several different lengths of stitch and secures equal stitches for forward and reverse feeding. The feed-mechanism may be that described in Specification 125,070.

FIG. 1.



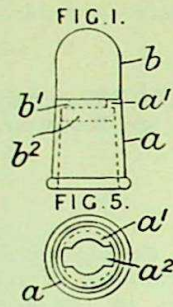
177,535. **Taffin, H. P.** March 25, 1921, [Convention date]. Drawings to Specification.

Tufting-machines.—The reciprocating shuttle of a sewing-machine is replaced by a thin loop-detaining hoop and the machine is used to insert free loops in defective parts of pile-fabrics such

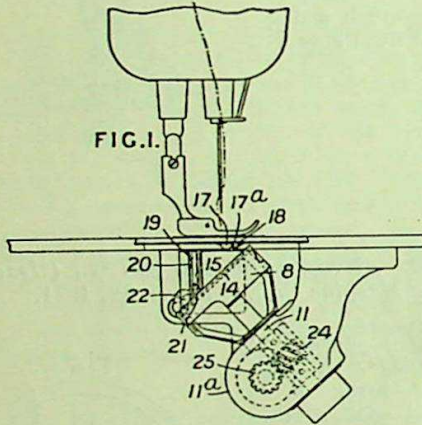
as velvet. The hook may have a sharpened edge for cutting the loops and may move over a sharpening-device in each reciprocation. A throat-plate with an open slot is used which permits the upstanding-loops to move away from the stitching point without being crushed.

177,604. Amies, E. Dec. 31, 1920.

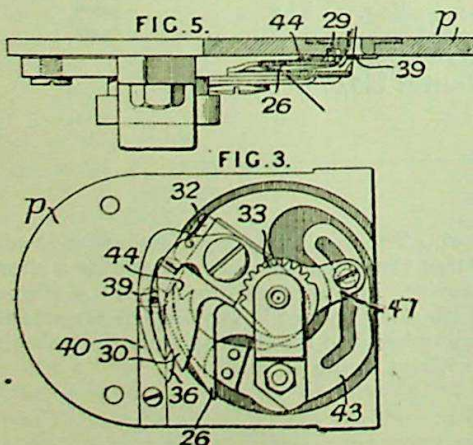
Finger-shields.—A pencil or ink erasing-appliance comprises a substantially rigid, open-ended thimble adapted to engage and be retained on the finger, and a block of rubber or other erasing-material removably held within the outer end of the thimble. In the form shown, the round-ended soft rubber erasing-block *b* has an annular recess *b'* near its base and a slotted flange *b²* at its base, the outer end *a'* of the thimble *a* having an aperture *a²* cor-



responding in shape to the flange *b²*, so that the block *b* may be attached to the thimble by passing the flange *b²* through the aperture *a²* and rotating the block *b*. Register marks may be provided on the block and thimble to indicate the position of the block for detachment. In modifications, the block may be held within the outer end of the thimble by means of continuous or interrupted screw-threads. For ink erasing, the block may be of hard rubber and have a flattened outer end. The thimble may be of celluloid, casein composition, vulcanite, metal, or other material. To increase its grip on the finger, the thimble may be slightly elliptical in section, or may have longitudinal slots extending from its open end nearly to the outer end, or may be provided with a resilient lining.

177,636. Bell, F. J. T., Bell, H. C., and Twin Bobbin Sewing Machine Co., Ltd. Jan. 19, 1921.

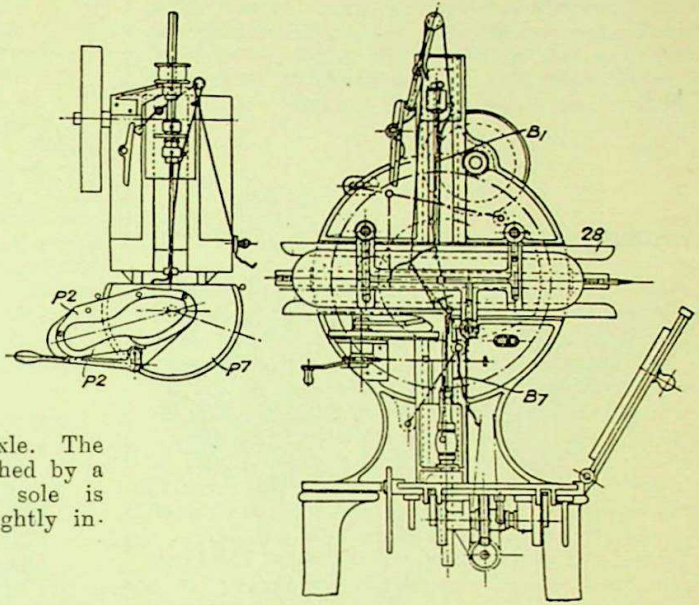
Lock-stitching by hooks.—A spool case 15, which takes a commercial spool, is secured vertically upon a race-plate 14 mounted in a loop-taker 8 on an oblique shaft 11. The spool-case top is in line with the highest point of the loop-taker, and it is held from rotation by stops 17, 18 which engage a projection 17^a on the spool case. A lever 22 periodically engages a projection 21 on the race-plate to turn the latter slightly and allow the needle thread to pass the stop 17. The under-thread is tensioned by a flat spring 19, shielded from the needle thread by ribs 20. The hook-shaft 11 is driven by skew gearing 24, 25 which is enclosed in an oil-bath casing 11^a, and the horizontal shaft is carried in transversely adjustable brackets. A radial fin on the spool case beneath the race-plate keeps the thread taut on the hook. The spool is carried on a special peg in the spool-case 15, as described in Specification 164,390.

177,738. Fairweather, W., (Singer Manufacturing Co.). June 20, 1921.

Thread-cutters and thread-end holders.—At the end of a stitching cycle, the last needle-thread loop is spread by a looper 30, and one limb is cut by a cutter 39, which bears yieldingly against the underside of the throat-plate *p*, and co-operates with a ledger-blade 40. The parts 30, 39 are integral with an arm 32, fixed to a sector gear 33, which is actuated from the stop-motion lever in the usual manner. An under-thread severing-blade 26, and a needle-thread nipper 36 are also secured to the arm 32. A forked arm 44 of a slotted lever 43, actuated by an arm 47 of the sector gears, nips the underthread, which is severed by the cutting-edge 29, Fig. 5, of the blade 26. When stitching is re-commenced, the needle descends and the shuttle draws down the loose thread end. The sector gear is then actuated to draw back the thread-nipper 36, which holds the thread-end during several stitches, after which the parts are wholly retracted.

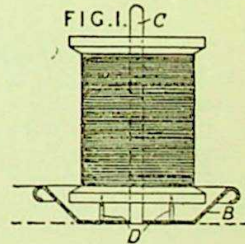
178,132. Soc. Anon. Plantillera Lenengoa. April 9, 1921, [Convention date]. Void [Published under Sect. 91 of the Act].

Sewing-machines; boot soles, making by stitching together coiled plait.—The sole materials are placed on a table between fixed and movable plates which compress and shape the edges. The sole is then removed by the application of a wooden form having pins which enter slots in the compression plates, and surround the sole. The plate with sole attached is mounted in guides 28 in a machine having a needle B^1 and piercer B^7 operating alternately to sew through the sole from edge to edge. The needle coacts with a shuttle moved in curved guides by a driver actuated by a spring-retained chain passing round a pinion on its axle. The heel and toe of the sole are then stitched by a needle moving horizontally while the sole is clamped between plates P^2 upon a slightly inclined turntable P^7 .



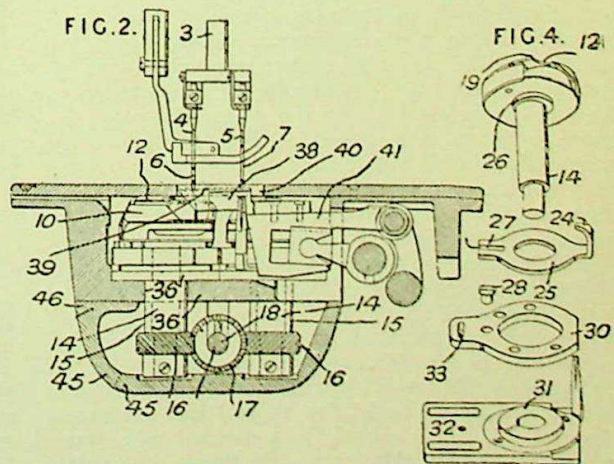
178,315. Southwell, A. April 11, 1921.
No Patent granted (Sealing fee not paid).

Sewing-machines; thread spool holders.—A metal tray B is secured to the under lower face of a thread bobbin by impaling the bobbin on spikes D. The tray rotates with the bobbin and prevents thread from fouling the fixed guide-pin C.



178,743. Fairweather, W., (Singer Manufacturing Co.). May 23, 1921.

Multiple needle machines; lock-stitching by hooks.—Four needles 5, 5, 6, 7, co-operate with four rotary loop-takers 10, which can be adjusted independently of one another. Each loop-taker 14, Fig. 4, is journaled in a bearing 15, Fig. 2, which is attached to a loop-taker frame 32, and projects through a slot 36¹ in the bed-plate 36. A thread case 12, journaled in the loop-taker, has a stop lug 19, engaging in a notched lug on the underside of the throat-plate. A finger 24 on a lever 25 oscillates the thread case at intervals as usual. The lever 25 is oscillated by an eccentric 26 on the shaft 14, its fulcrum being a follower 28, which works in a slot 27 in the lever, and which is seated in an adjusting-plate 30. The plate 30 embraces a hub 31 on the loop-taker frame 32, and is variably fixed to the support 32 by a pin-and-slot connection 33. The support 32 is secured to the bed-plate 36, and is adjustable at right-angles



to the feed. The loop-takers are actuated from the needle bar actuating shaft through a shaft 18

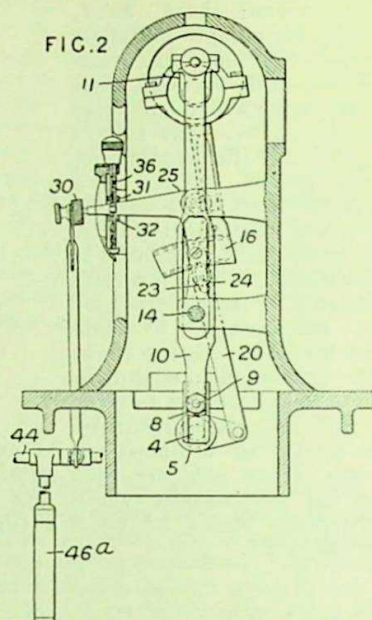
and spiral gears 17, 16, so as to give two rotations for one needle reciprocation. A feed dog 38 operates through slots 40 in the throat plate: it extends forwardly between the front needles and a narrow extension 39, and extends rearwardly between the rear needles. The gears are enclosed in an oil bath 45 having a flange 46 to prevent leakage when the machine is tipped.

179,092. Flanagan, J. A. June 27, 1921.

Sewing-machines; feed by dogs.—A tubular feed-shaft 5 is actuated by means of a link 20 adjustably connected to an oscillating slotted lever 16 and the adjustment of its connection is determined by means of a bell-crank lever 25 having a pin 24 which engages in a slot 23 in the link 20. The other arm of the lever 25 has its movement limited by stops in the form of nuts 31, 32, on a right and left-handed screw 36. The lever 25 is oscillated by a knee-lever 46^a on a rock-shaft 44, and can be locked in place by a nut 30.

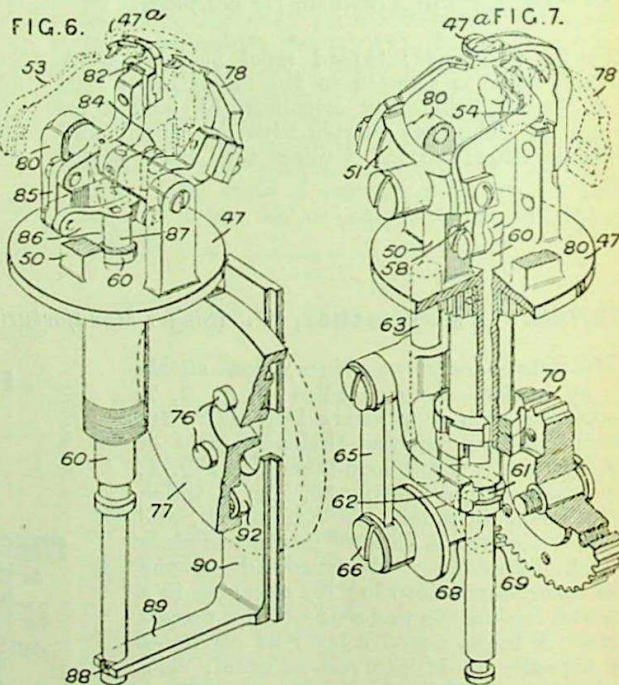
Upper and lower shafts, connecting.—The hook-shaft 4 is rotated irregularly by means of a slotted crank 8 and a pin 9 at one end of a pit-

man 10 which has a sliding-rocking control at 14 and which is actuated by a rotating crank 11 on the needle-shaft.



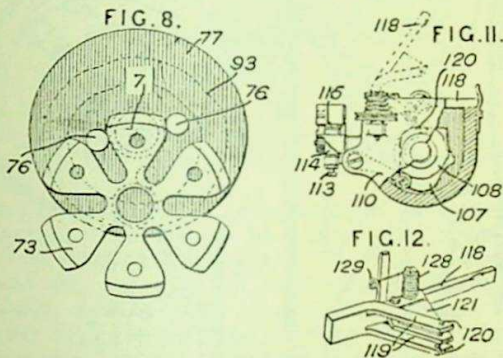
179,278. Fairweather, W., (Singer Manufacturing Co.). Feb. 1, 1921.

Button-hole sewing machines; double-loop stitching.—Relates to overseaming machines of the kind described in Specification 9460/12, wherein a laterally jogging needle co-operates with a threaded and un-threaded looper and two loop spreaders or detainers for distending the thread loops and consists in mounting the detainers so that they act unassisted by the loopers. The detainers are pivoted on axes transverse to the paths of the needles, have beaks facing in the same direction and are simultaneously moved in opposite directions. The loopers are actuated through a pin and star wheel drive to produce periods of dwell in their motion and are movable in the plane of lateral movement of the needle. The non-threaded looper and a loop-detainer co-operate to present the needle-thread loop to the needle in a position above the looper. The looper mechanism is mounted in a rotary turret 47 which carries a post 50 in which is fulcrumed a carrier 51 for a threaded looper 53 and a non-threaded looper 54. The carrier 51 is connected by a link 58 to a sleeve 60 having a groove 61 engaged by a forked arm 62 secured on a rod 63 slidable in the frame and reciprocated by a link 65 connected to a pin 66 carried eccentrically by a shaft 68 having thereon a gear-pinion 69 meshing with a wheel 70 of three times its number of teeth. The wheel 70 is secured to a star-wheel 73, the six slots in which, flared outwardly at the ends, are engaged by two pins 76 on a disc 77 mounted on the main shaft 7. The form of the slots in the star-wheel has the effect of



producing an intermittent motion thereof, and in consequence a period of dwell in the movement of the loopers in their intermediate positions. Mounted on a fulcrum supported by posts 80 are loop-detainers 78, 82 co-operating respectively with the threaded and non-threaded loopers 53, 54. These detainers are moved simultaneously in

opposite directions by links 84, 85 connecting their supporting arms on opposite sides of the fulcrum to a cross-head 86 on a vertically reciprocating rod 87. A groove 88 in the rod is engaged by a forked arm 89 projecting from a slide 90 which is reciprocated by the engagement of a roller 92 thereon with a cam groove 93 in the disc 77. The detainer-horns move in a path which passes between the usual throat plate 47^a, Fig. 7, and the path of the loopers. The mechanism for rotating the stitch-forming devices is constructed substantially as described in Specification 15049/15. In operation the needle 22 in forming its depth stitch *a* passes through a loop *b* of the under-thread held at that moment by the detainer 78 and subsequently drawn up round the loop *a* by the retraction of the looper 53. The loop *a* is engaged by the looper 54 and carried to one side, where it is engaged by the detainer

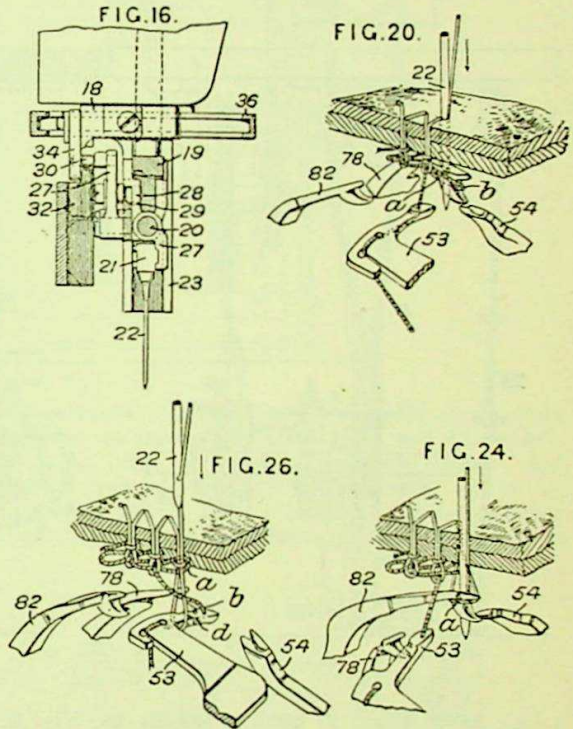


82 and held for engagement by the needle 22 in its next descent for producing the slit stitch, as shown in Fig. 24. As the needle descends, the detainer 82 recedes and the loop *a* is drawn up by the thread control. The needle thread on the rise of the needle throws out a second loop *d*, Fig. 26, which is entered by the threaded looper 53 the thread of which is engaged and held for the subsequent depth stitch descent of the needle by the detainer 78.

Governing needle thread.—Mounted on a vertical take-up shaft are spaced take-up cam-plates 107 and a cam 108 actuating the thread-nipper which is engaged by a lever 110 carrying an adjustable push-screw 113 bearing on the spring-pressed nipper-pin 114 to press it against the abutment 115. The cams 108 lie on either side of a slotted plate 121 and between bars 119 all mounted on a normally-movable pivoted bar 118. The thread passes through holes 120 in the bars

119 across the cams 108, through the slot in the plate 121 and through an eye 129 carried by a slack-thread controller or check-spring 128.

Needles, vibrating laterally.—The needle jogging mechanism is substantially as described in Specification 15048/15 and comprises a yoke 19 on the needle bar carrying a pin 20 on which is slidably mounted a block 21 carrying the needle 22. An arm 23 depending from a rotary sleeve 18 engages an arm of the yoke and to rotate it

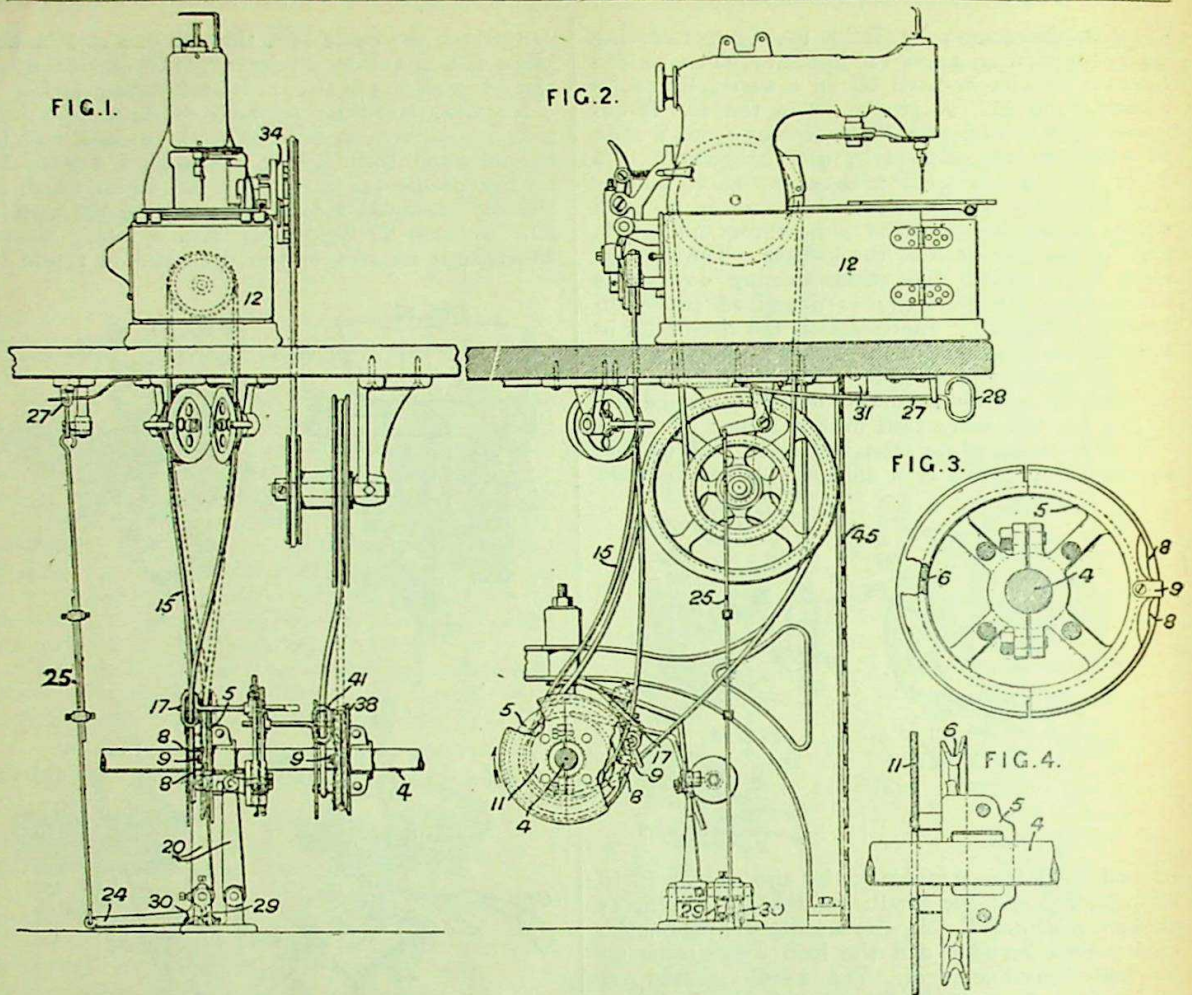


and the needle bar. A slotted lever 27 pivoted to the yoke 19 carries an adjustable pin 28 extending into a vertical slot 29 in the needle block 21 to which it communicates lateral movements on the pin 20 when the lever 27 is moved about its pivot. The lever 27 carries a pin 30 engaged by a slotted bell-crank lever 34 and adapted to be diverted thereby so as to slide alternately on the down-stroke of the needle in one of a pair of vertical guide-ways 32. The lever 34 is actuated by the movements of a ring 36 connected to a needle-jogging rod and engaged by a pin on the lever.

179,279. Fairweather, W., (Singer Manufacturing Co.). Feb. 1, 1921.

Sewing-machines; starting and stopping gear.—Relates to gearing of the kind in which a band may be placed on a pulley with the aid of a band-catching tooth and thrown off into a space between the pulley and a retaining-ring. This retaining-ring is in the form of a disc 11, Fig. 4, spaced from and rotating with the pulley 5. The pulley 5 has a deep V groove 6, one of the walls of which is cut away at 8, Fig. 3, to allow the band to be placed on or off the pulley when turn-

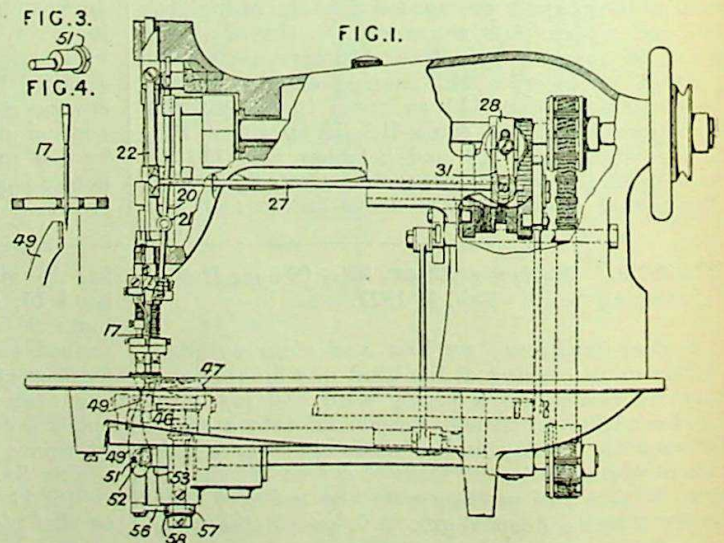
ing in either direction. In disconnecting, the band 15, Fig. 1, is moved clear of the catching-tooth 9 by a shifter 17. The invention is described as applied to a power table supporting a number of button-holing machines 12, driven by one continuously-rotating power shaft 4. The pulley 5 drives the machine, and a similar pulley 38 drives the cutter through a one-revolution clutch 34. A parallel motion is given to the shifter 17 and to the other shifter 41 by a pair of parallel pivoted links 20 actuated through a lever 24 the movement of which is limited by a lug 29 between stops 20. The lever 24 is connected by



a link 25 to a rod 27 with a handle 28, Fig. 2, which extends outside a guard 45. The rod 27 is held in either extreme position by a leaf spring 31 bearing upon it.

179,504. Singer Manufacturing Co., (Assignees of Ringe, J. C.). April 30, 1921, [Convention date].

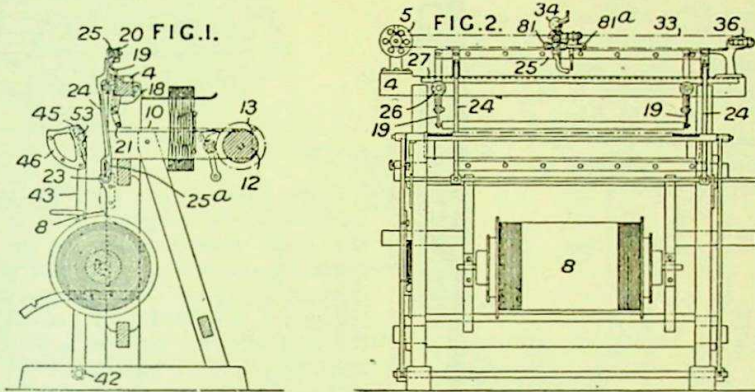
Sewing-machines; needle guides; needles vibrating laterally.—In hem-stitching and like machines a needle-guide is provided the movements of which are so timed relatively to the lateral movements of the needle in the work that the constant position of the needle relative to the loop-taker at the moment when the latter engages the loop is ensured. The guide 49 is mounted on a stud 51 eccentrically journaled in a lug 52 and secured therein in adjusted position by a set-screw. The lower end of the guide 49 is connected by a pitman 56 and straps 57 to an eccentric 58 on the shaft 46 of the loop-taker 47. The guide is arranged so as to allow a certain clearance to the needle 17 as the latter enters the work, Fig. 4, but subsequently the lateral move-



ment of the guide is greater than that of the needle to the extent that the guide is in a position to support the needle when in the loop-taking position on the up-stroke to prevent de-

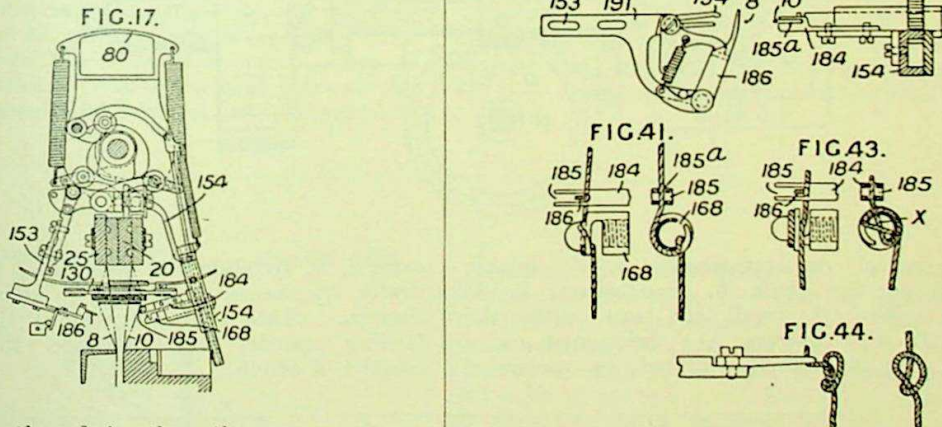
flexion and misplacement of the loop. In the machine shown, the needle is vibrated laterally by mechanism of known type comprising mechanism 20, 21, 22, 27, 28, 31.

179,633. Hartmann, R. Feb. 7, 1921.



Knot-tying devices.—In mechanism for uniting, by knotting, the threads in a new warp to those in an old warp, the threads 8, 10, Figs. 1, 2, 17, 28, and 29, are strained in frames and extend vertically, side by side, to respective clamps 25, 20, over which a carriage carrying the knotting-mechanism is moved straddlewise as the knotting of the threads selected from the two warps proceeds. The foremost thread in one warp and

an horizontal slot 185, and the threads are knotted together as shown in Figs. 41, 43 and 44, which, however, only show one of the two threads that are knotted together. A knotter 168 carried by the lever 154 is first rotated by cam-controlled rack-and-pinion mechanism, so that the threads



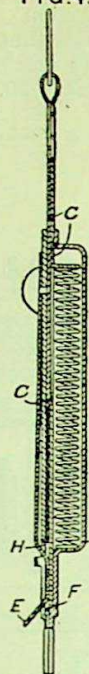
the foremost thread in the other warp are removed therefrom by special selecting-devices and are knotted together by mechanism comprising cam-controlled levers 153, 154, which are moved away from and towards one another, the selected threads being cut by shears operated from the lever 154. When the levers move inwards towards one another, a specially-operated spring-controlled pressure-lever 186 carried by the lever 153 moves the selected threads 8, 10 into a vertical slot 185^a in a forked stop in a member 184 on the lever 154, the pressure-lever 186 entering

are wound thereon, and then open spring-controlled tongs 194 enter the knotter and close on the threads therein at the point X, Fig. 3. The levers 153, 154 then swing apart and the knotter rotates backwards, the tongs are opened, and the knotted and released threads are drawn through a slot into a deflecting-casing.

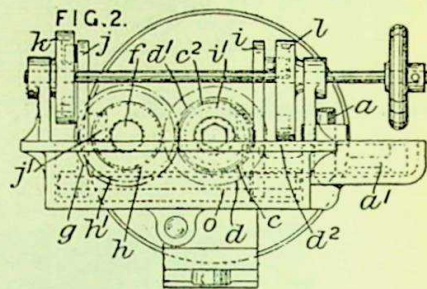
179,855. **Berti, A.,** and
Molgora, P. July 11, 1921.

Needle-threaders.—A spring-governed slide C has a pin end H, which can be pushed down to force a thread, positively held in its path by a spring E, into the eye of a needle inserted in an aperture F.

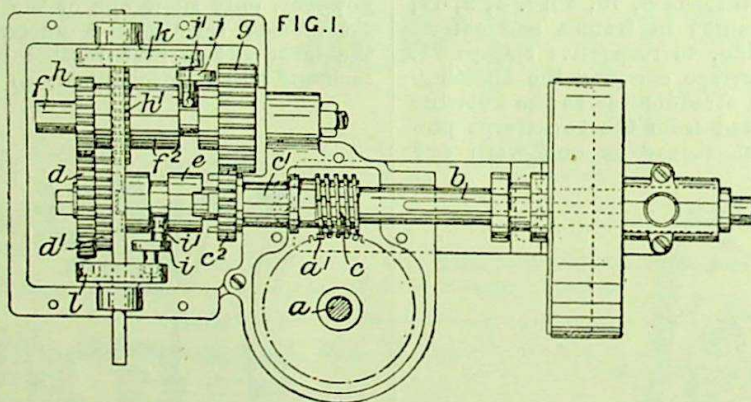
FIG. 4.



180,151. **Taylor, T., Winstanley, J. H.,**
and **Rooney, J. H.** April 8, 1921.



Sewing-machines; feed by wheels; speed-regulating.—Variable-speed gear is provided between the main driven-pulley of a piece-end sewing-machine and the driving gear for the continuously-rotating spiked feed-rings, which is carried on the upper end of a shaft a. A loose sleeve c' on the main-shaft b carries a worm c, meshing with a wheel a' on the shaft a, and a pinion c'2 meshing with a broad gear-wheel g, mounted on a loose sleeve f'2 on a shaft f. A sleeve e, slidably keyed to the shaft b, may engage either



the sleeve c' or spur-wheels d, d' loosely mounted on the shaft b. Spur-wheels h, h' on the sleeve f'2 mesh in turn with the wheels d, d'. Levers i, j fulcrumed on a shaft o, Fig. 2, can be vibrated, by means of

cams l, k, to slide the sleeves e, f'2 along their shafts, by means of dies i', j' engaging grooves therein. This gear permits of three different feeding speeds, and therefore three different lengths of stitch.

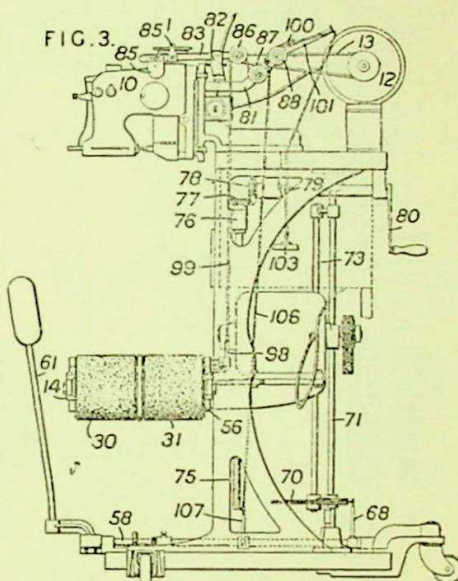
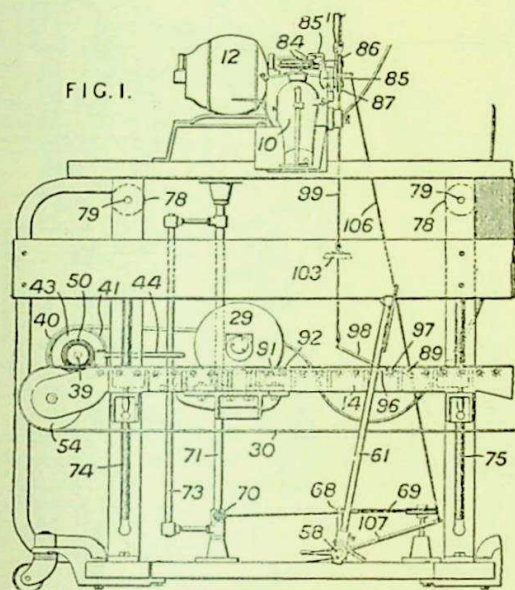
180,212. **Fairweather, W.,** (Singer Manufacturing Co.). May 28, 1921.

Sack-sewing machines.—A filled-sack sewing-machine comprises a motor-driven conveyer 30, 31, work-operated means for actuating the sewing-mechanism 10 from a second motor 12, and emergency mechanism for stopping the conveyer and sewing mechanisms simultaneously. A conveyer frame 14, vertically adjustable on screw rods 74, 75 which are actuated by handles 80 through connections 76 - - 79, carries conveyer

belts 30, 31 on rollers 54, 56, the former of which is driven by gearing from a shaft 39. A clutch 43, 41 can be actuated by a lever 44 to connect the shaft 39 to a loose pulley 40 driven by a motor 29. The sewing-machine 10 carries a bracket 81, 82, on which is pivoted a weighted lever 83 carrying a belt fork 84, and a pulley-brake 85'. Bars 89, arranged between the conveyer belts, are connected to crank-arms 91, 96 on roller spindles 92, 97, the latter of which also carries a crank-arm 98, to which is joined a flexible member 99, passing round elements 86 - - 88, through

the end of a lever 101, and supporting a weight 103. The other end of the lever 101 is connected by a chain 106 to a crank-arm 107 on the shaft 58, on which is mounted a starting-handle 61. When the machine is stationary, Figs. 1 and 3, the lever 101 is in a raised position and a spring 100 on the lever, which always grips the connection 99, provides sufficient slack in the connection

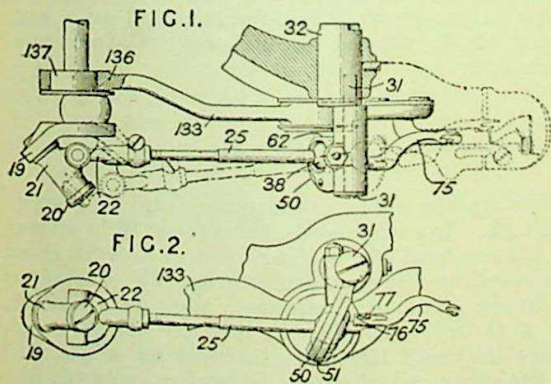
tion to allow the belt-shifting lever 83 to assume its stop-motion position, and the trip-bars 89 to be lowered under their own weight. In operation, the motors 12, 20 are separately started, and the handle 61 is pulled to the left, Fig. 1, to rotate a vertical rod 73, through connections 68 - - 71, to shift the lever 44 and to connect the conveyor to its motor. The same movement of the handle



allows the lever 101 to drop, so that the trip-bars 89 are raised into operative position, the lever 83 not being affected. A filed rack travelling along the conveyor depresses the trip-bars 89, so that the connection 99 actuates the lever 83 to shift the belt 13 from the loose to the fast pulley of the sewing-machine. When the sack rides off the tip-bars, the weight 85 takes control, disconnect-

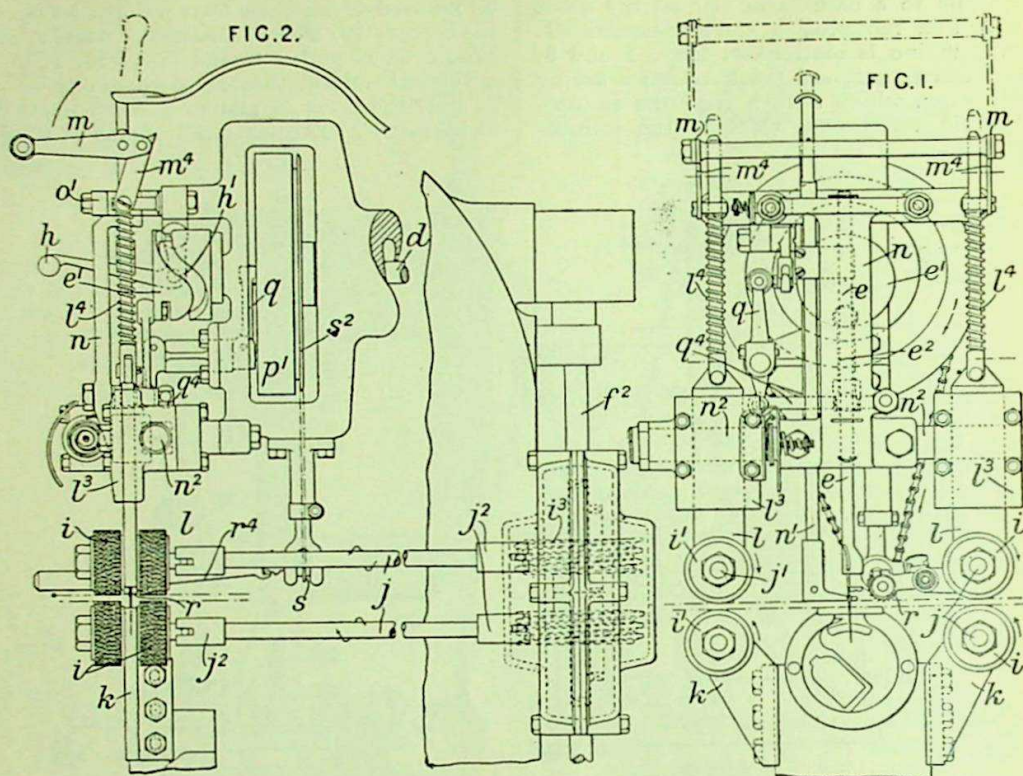
ing the sewing-mechanism and raising the trip-bars. By shifting the handle 61 to the right during running, the conveyer mechanism can be unclutched, and the lever 101 is raised so that the spring 100 produces slack in the connection 99; the slack produced is taken up by the lever 83, thus stopping the sewing-mechanism.

180,298. Dearborn, C. A. May 17, 1921,
[Convention date].



Blind-stitching machines.—In a blind-stitch machine of the type described in Specification 4474/06 and comprising a feed bar 133 driven by an eccentric 136, 137 and a looper 25, 75 actuated by a crank 19, inclined stud 20, sleeve 21, and yoke 22 pivoted to the sleeve, the looper bar 25 connected by a universal joint to a rocking arm as described in Specification 19556/00 is mounted adjacent to and outside of the feed-bar. The arm comprises two plates 50, 51 with spheroidal recesses adapted to be clamped upon the spherical bars 38 on the bar 25 and pivoted on a stud 31 eccentrically mounted in an adjustable block 32. The plates 50, 51 are cut away at 62 to allow a closer approximation to the bar 133. The looper proper is of stamped sheet-metal of **U**-section and is connected to the bar by a screw 77 engaging a slot 76.

180,470. Saunders, S. E., and Clarkson, A. March 18, 1921.



Sewing-machines; feed by wheels; needles, vibrating laterally; governing needle thread.—A machine, for sewing together sheets of ply-wood as described in Specification 105,412, [Class 145 (ii), Wood, Working], is provided with reversible means for feeding the material continuously, and for moving the needle with the material during engagement therewith; means are also provided for correcting the take-up during reversal. Two pairs of feed-rollers i , i^1 are continuously rotated from a shaft j^2 , through worm gearing j^3 , and shafts j , j^1 with universal joints j^2 . The lower front-end shaft-bearings k are capable of vertical adjustment, and the upper bearings l are carried on spring-pressed rods l^4 which can be raised by means of levers m and links m^4 . A needle-bar e and a spring-pressed presser-foot u^1 are mounted to slide vertically in a frame u with lateral extensions u^2 , which is mounted for re-

ciprocation in the direction of feed in the blocks b^3 and a guide-slot o^1 . The needle-bar c is reciprocated vertically by a link e^2 from a crank-disc e^1 on a shaft d , which is driven from the shaft f^2 . The frame u is reciprocated laterally by a link q^4 , and a lever q from a cam-disc p^1 on the shaft d . A cutter r , pivoted on one of the bearings l and driven from the shaft d through gearing s^2 , s and a universally-jointed connecting-rod r^4 , grooves the surface of the wood to receive the stitches. In the machine as shown in the drawings, a take-up lever h is actuated by a cam-groove h^1 in the crank-disc e^1 . To give the lever h its correct movement for both directions of feed, it may, in an alternative form, be actuated by either of two cams, slidably mounted on a horizontal shaft, normal to and driven from the shaft d .

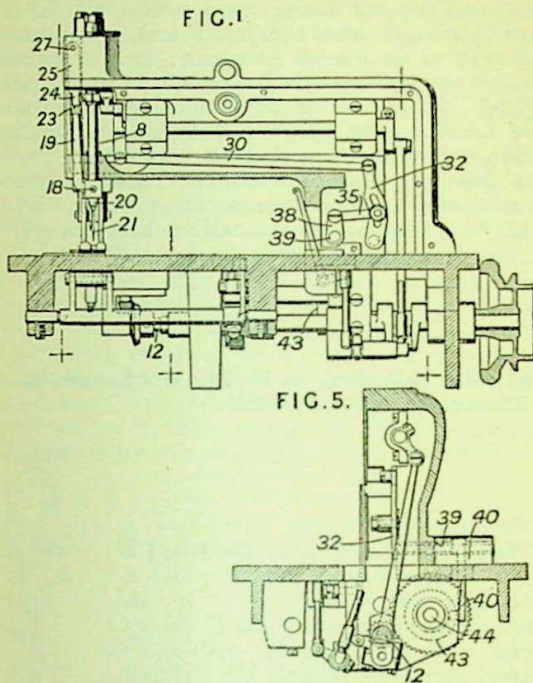
180,507. Leathem, J. April 11, 1921.

Hem-stitching machines; needles, vibrating laterally.—When placing a stitch off the hem, the laterally-vibrating needle 21, of a sewing-machine, is vibrated back and forth while in the material so as to cause the needle to co-operate properly with its rotary loop-taker and to leave the material at the point of entry. A needle-holder 20, integral with a needle-actuating lever 19, is pivoted at 18 to a needle-bar 8, reciprocated ver-

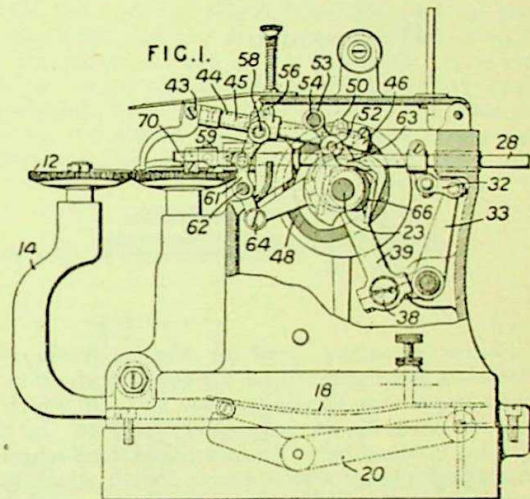
tically by the usual mechanism from the main-shaft 12. The other end of the lever 19 is pivoted to a cross-head 23, sliding in a groove 24 in an L-shaped needle-oscillating lever 25 pivoted at 27 to the frame and actuated, through a link 30, by a slotted lever 32. A link 35 variably connects the lever 32 to a crank 38 on a shaft 39 to the other end of which is fixed a lever 40. The lever 40 is oscillated by a cam 43 on a shaft 44 driven from the main-shaft 12.

(For Figures see next page.)

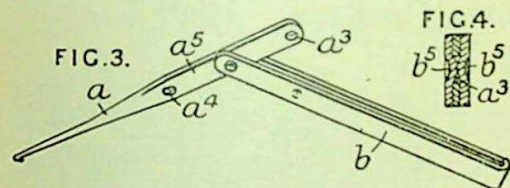
180,507.



45, and is given two-directional motion by a lever 61 and a crank 53 which are actuated by a forked floating member 63 embracing a four-motion cam 66 on a driving-shaft 23. The looper shaft 44 is oscillated by means of a ball-ended lever arm 46, clamped to the shaft, and engaging in a cam-groove 48. A collar 50, clamped to the sleeve 45, has a pivot-pin 52 journaled in a bearing on the member 63; this bearing is embraced by the end of the crank 53, which is pivoted to the frame at 54. Another collar 56 has a pivot-pin 58, journaled in a link 59, which is connected to the



180,538. **Shrimpton & Sons, Ltd., A.,**
and **Shrimpton, H. N.** May 2, 1921.

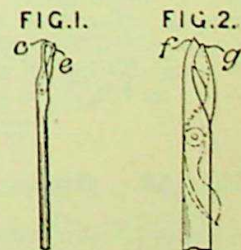


Crochet-hooks.—A crochet-hook *a* is formed with a thin flat shank *a*⁵ pivoted, at some distance from its end, in a sheath *b* made of thin flat material. The hook is perforated at *a*³, *a*⁴ and the sheath has corresponding inwardly extending circular protuberances *b*⁵, Fig. 4, which, engaging with either hole, serve to hold the crochet-hook in position. Slots or grooves in the shank of the hook may be used in place of holes *a*³, *a*⁴ and the hole *a*³, or the corresponding slot, permit the use of the device as a bodkin when it is closed. Grooves also may take the place of the holes *a*³, *a*⁴ and, in that case, a special hole is provided for bodkin purposes.

bell-crank lever 61, fulcrumed at 62, and pivoted at 64 to the member 63. This looper mechanism gives a decided dwell whilst the needle enters the loop, followed by a rapid loop-shedding movement. The needle-bar 28 is reciprocated by means of a cam-lever 33 and a link 32. To adapt the machine to both thin and thick work, the needle-bar stroke may be varied by means of the eccentric mount 38 of the pin in the lever 39 which connects it to the pitman 33. The usual thread-clamp, carried by the needle-bar, is intermittently released by a fixed cam-shaft 70. The presser-wheel 12 is carried by a curved arm 14, controlled by a spring 18, and a treadle lever 20.

180,730. **Ortega, J. M.** Feb. 21, 1921.
Grant of Patent refused.

Darning; hand sewing-tools.—An instrument for repairing ladders in knitted fabrics comprises a latch-needle *C*, Fig. 1, having a projecting latch *e* and fitted with a handle. In a modification, both the hook part and the latch are formed with points *f*, *g*, Fig. 2, by which a ring of a ladder being repaired is more easily guided between the latch and the

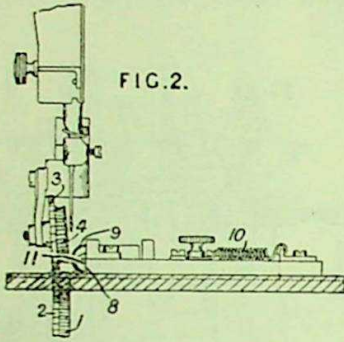


180,590. **Fairweather, W.,** (*Singer Manufacturing Co.*) July 15, 1921.

Overhead sewing-machines.—The shaft 44 of a looper 43 is revolvably supported within a sleeve

hook. The needle may be pivoted to the handle, or the handle may be detachable and shaped to serve as a protective cover for the needle when the latter is not in use.

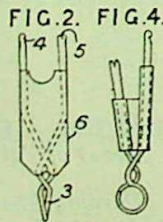
180,832. Singer Manufacturing Co., Ltd., Corral, H., and Heggie, J. April 6, 1921.



Sewing-machines; feed by wheels; folding devices.—A sewing-machine for the manufacture of brace-loops, bag-handle straps, &c., in which a core of cord &c. is commonly inserted in the article, is provided with a toothed feed-wheel 1 co-operating with a roll-presser 4 with which it is geared by teeth 2, 3 and in association with the feed wheel a guide-surface 8 having thereon in advance of the needle a folder 9 for pressing the leather blank into U-form with the edges thereof in contact with the guide-surface. The guide-supporting block is mounted adjustably and the folder 9 is restrained against the guide surface by a spring 10. A stationary grooved member 11 projecting from the guide 8 serves to guide the cord.

181,139. Parker, A. J. March 16, 1921.

Needle-threaders.—A hook 4 and a prong 5 for drawing and pushing, respectively, a sewing-thread through the eye of a needle are formed on the legs of a piece of wire, which is bent to form a loop 3 at the centre, and is fitted with a slidable cover 6. The cover 6 is partly closed at the loop end, to keep it from slipping off the legs. A modification is shown in Fig. 4.



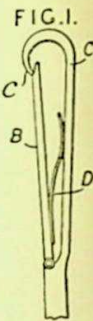
181,143. Guise, J. March 18, 1921.

Crochet-hooks; sewing-needles.—Sewing, pack, and other needles and crochet-hooks are scoured by wrapping in coarse fabric into cylindrical bundles, which are rolled between moving plates,

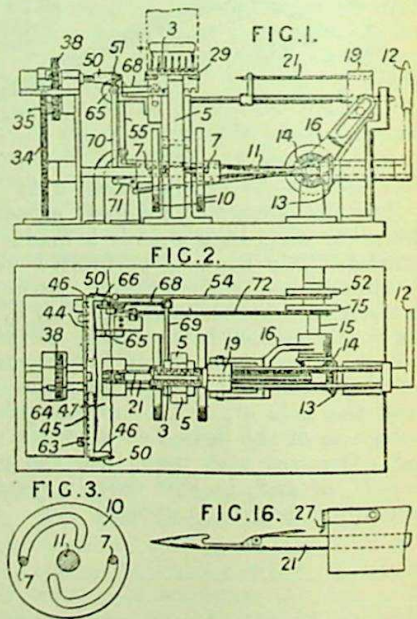
lubricant and abrasive materials such as soft soap and emery being used. The articles are then hardened and tempered and subsequently wet-scoured in barrels, shakers, &c. A suitable wet-scouring process is described in Specification 151,688, [Class 82 (ii), Washing granular &c.]. The articles may then be polished or else subjected for a short period to the fabric process and then to a glazing process. They may then be subjected to a rust-preventing process, such as that described in Specification 145,116, [Class 82 (ii), Washing granular &c.].

181,210. Lawder, P. E., and Lane, E. C. Moore. May 2, 1921.

Bodkins.—A bodkin comprises a hooked part C with a pointed end c and a shorter hinged part B pressed outwardly by a spring D. In an alternative form, the part B is integral with the rest and resiliently presses outwardly against the pointed hook.



181,524. Cohn, S. April 1, 1921.

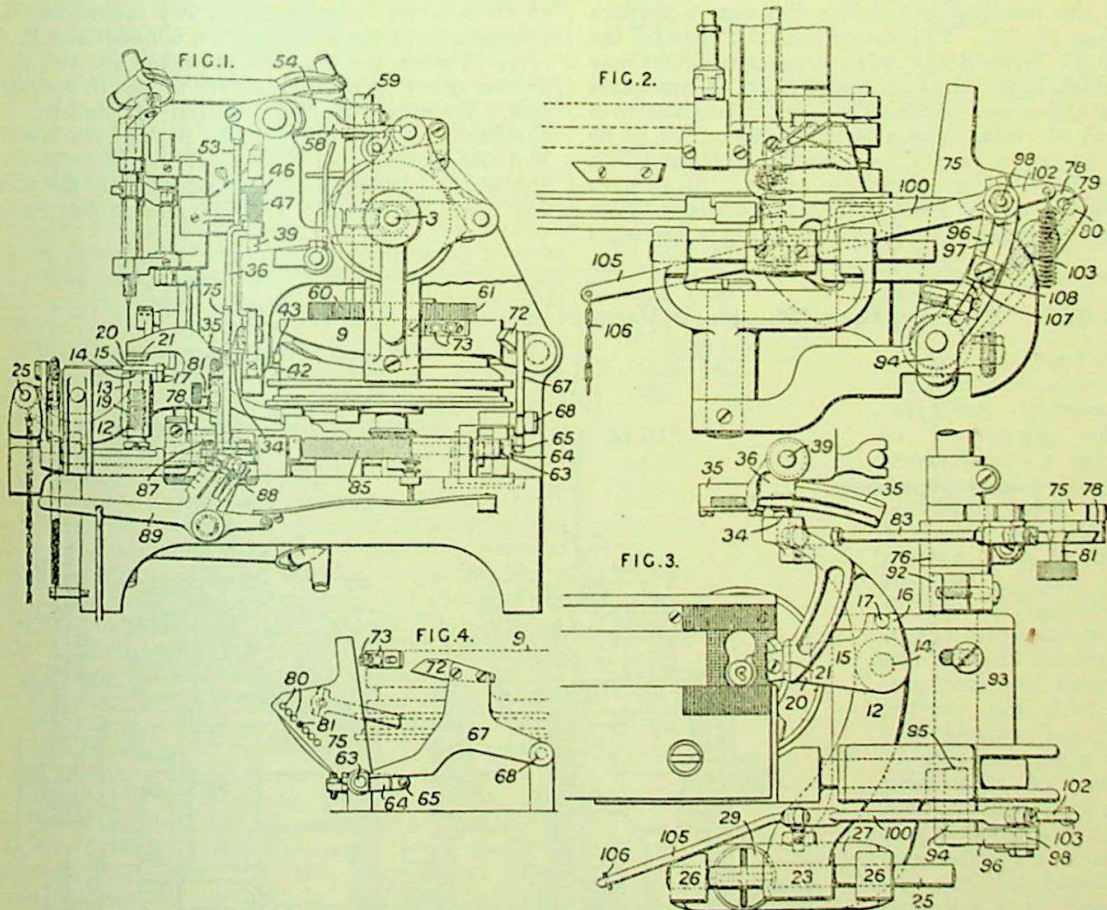


Incandescent-lamp-mantle sewing-machines.—A slotted beam 44, 45 with thread-clamping devices at each end, is rotated from a shaft 11, to lay a thread between radial cutting-edges of discs

65, 66, and in the open eyes of latch-needles 21. Side folders 8 are mounted on pivoted levers 5, which are oscillated by pins 7 working in slotted discs 10, Fig. 3, mounted on the shaft 11. A slotted crank 16 is fixed to a shaft 15 and is rotated through mutilated bevel gearing 13, 14 from the shaft 11. The crank 16 reciprocates a block 19 carrying the needles 21. Levers pivoted in the arms 44, 45 carry vertical plates 50, notched at 51, and concentric with shoes 46 on the arms. A pivoted lever 55 is oscillated from a cam disc 52 by a rod 54 to rotate the lever on the upper arm, Fig. 2, and thereby clamp the thread in the notch 51, between the plate 50 and the shoe 46. Of the cutting discs 65, 66 which are rotatably mounted on a shaft, one is integral with an arm 68, which rocks on a bracket 69 and the other is integral with an arm 70 which is connected by a bell-crank lever 71 to a bar 72, reciprocated from a cam disc 75 on the shaft 15.

A pivoted tripping-member 29 opens the latches of the needles on their forward motion, and another tripping-member 27, Fig. 16, closes them on the return. A hand-lever 12 is used to rotate the shaft 11, first counterclockwise to the operator, then clockwise. The thread end is clamped in the upper arm at the end of an operation, and, as the next begins, the fabric is pleated, the needles are pushed through it, and the beam 44, 45 is turned through half a revolution by gears 34, 35, 38, and a one-way ratchet-and-pawl connection, to lay the thread in the needle barbs. Just before the end of this movement, projections on the lever 47 hit sloping shoulders 63 on the standard 64, and the clamps are opened so that the thread enters the rising notch 51. Further rotation closes the upper clamp, and then cuts the thread. Return motion retracts the needles to draw the thread through the fabric, opens the folders and the cutter, and retracts the lever 55.

181,555. **Fairweather, W.**, (Singer Manufacturing Co.). April 21, 1921.



Button-hole sewing-machines.—A button-hole sewing-machine is provided with a work-clamp movable for the purpose of spacing the button-holes in a path of curvature variable between a given maximum and a straight line, the means for varying the curvature being operable while

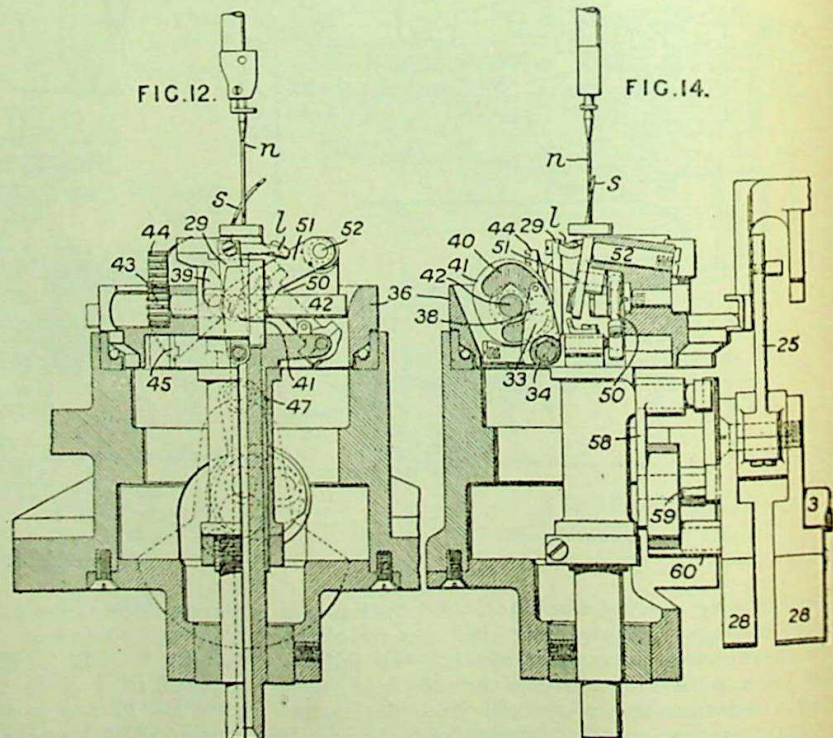
the machine is running. The work is shifted and the button-holes are cut by a lever 12 having a tubular boss 13 in which is fitted a guide-stud 14 secured in a plate 15 positioned by a jaw and stud 16, 17 and carrying a thrust block 20. A spring 19 is interposed between the base of the

stud, which rests on the machine frame, and the boss 13, and holds the lever with the cutter 21 in raised position from which it may be depressed to bring the cutter and the block 20 into co-operation. The lever 12 is mounted at one end 23 on a slide-pin 25 slidably and rotatably mounted in bearings 26 of a yoke 27 which is pivoted on a fixed vertical stud 29. The lever carries at its other end a roller 34 engaging the underside of a rail 35. The rail 35 is secured to a slide 36 in which a rod 39 is slidably mounted, a spring 47 being interposed between the head 46 of the rod and the slide 36. A slide 42 mounted on the rod carries a stud 42 adapted to be engaged by a cam-rib on the main cam 9 to depress the slide 42 which acts through a spring to depress the rod 39 and hence the slide 36 and rail 35 which in turn depresses the lever 12 into nipping engagement with the work. A plunger 53 vibrated by a lever 54 and cam 58 works in a slot in the rail 35 and engages the roller 34 to depress the lever forcibly and cut the buttonhole at the time when the roller has been moved by the shift of the lever 12 to the cutting position. The shaft 59 of the cam 58 is driven by worm-gearing from the main shaft 3 of the machine and drives the cam 9 through gearing 60, 61. The mechanism for moving the lever 12 to shift the work comprises levers one of which is mounted on a rock-shaft 63 controlled by a spring 85. An arm 64 on the shaft carries a stud 65 engaged by a lever 67 fulcrumed at 68 and having a tappet member 72 projecting into the path of rollers 73 on the cam 9. An arm 75 is secured on the shaft 63 and has a sleeve 76 on which is mounted a lever 78 having a series of

holes 79 arranged at an inclination to a series of holes 80 in the arm 75. The levers can be connected in different angular relations by a pin 81. A stop-screw 87 on the hub of the lever 78 is held by the spring 85 against a movable stop-plate 88 which is adjustable by a lever 89 as described in Specification 183,256. A ball stud on the lever 78 is connected by a link 83 to a ball stud on the lever 12. A collar 92, Fig. 3, secured on the sleeve 76 is provided at one end of a bar 93 extending forwardly to a hub 94 carrying a steady-pin 95 journaled in the frame. A segmental crank-arm 96 extending upwards from the hub 94 has a slot 97 in which is movable a stud 98 carrying a ball-stud connected by a link 100 to a ball-stud carried by the boss 23 of the lever 12. A spring 103 attached to an extension 102 of the link tends to keep the stud 98 in contact with a stop 108 adjustable along the slot 97, and it may be lifted from this position against the action of the spring by the operation of a treadle-chain 106 attached to an extension 105 of the link. The crank-arms 96, 75 and their connections to the lever 12 are so proportioned that when the stud 98 is in its highest position, the effective lengths of these arms are equal and the consequent displacements of their respective connections to the lever 12 when the shaft 63 is rocked are also equal so that every point of the lever moves in a straight line. By adjusting the position of the stop 107, the degree of curvature of the path of the lever 12 and the cutting tool is varied, the adjustment of the length of the path being effected by the levers 75, 78. Specification 185,711 also is referred to.

181,556. Fairweather, W., (Singer Manufacturing Co.). April 21, 1921.

Button-hole sewing-machines.—In a sewing-machine for producing groups of stitches a thread severing device is employed which is mounted below the work plate and comprises a cutting edge and a pull-out arm which is actuated at the close of a stitching period to draw out a thread loop into contact with the cutting edge, and also preferably a nipping arm in advance of the cutting edge into contact with which the nipping arm draws out the free end of thread at the beginning of a stitching period. The thread-cutting and nipping device is described as employed in a button-hole sewing-machine of the kind described in Specifications 181,555

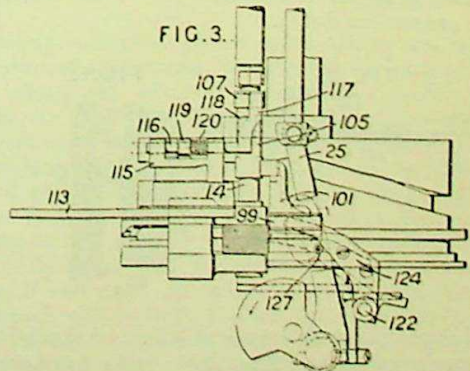
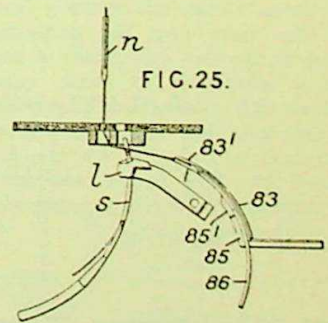
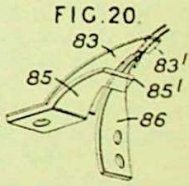
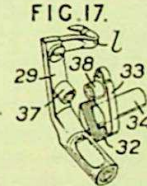
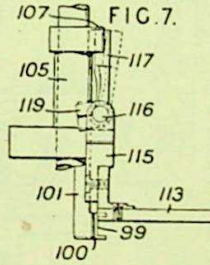
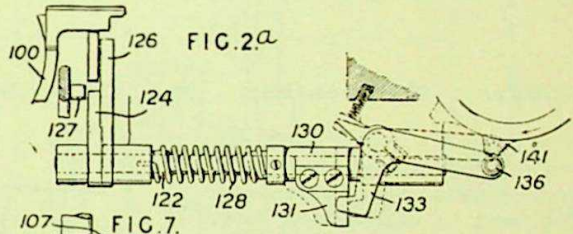
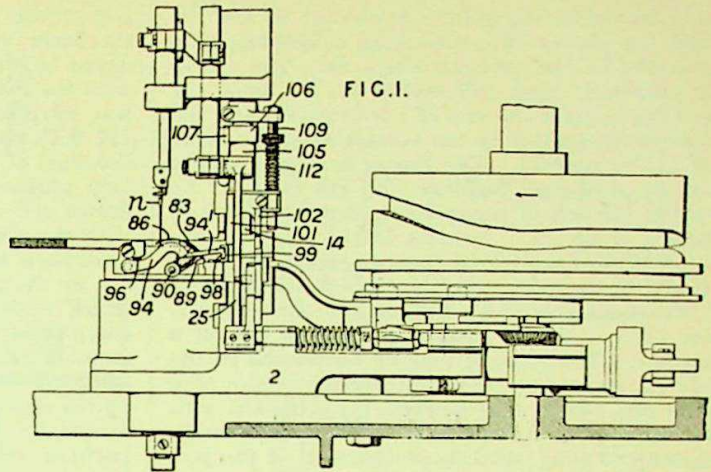


and 185,711, wherein a shifting frame 2 carries the stitch-forming devices and the needle is rotated at certain times synchronously with the rotation of a lower needle and looper mechanism carried in a revolving turret in the shifting frame. The looper mechanism is of a form modified from that described in Specification 185,711.

Loop-stitching.

The looper *l* which spreads the loops of the needle *n* for the passage of the lower needle *s* is secured to an arm 29 pivoted in a block 32 having a stud 34 pivoted in the rotary turret 36. Roller studs 37 on the arm 29 and 38 on an arm 33 of the block enter cam grooves 39, 40 in the periphery and one of the ends of a cam-cylinder 41 pivoted on a shaft 42 mounted in the turret and actuated by a rack 44 engaging a pinion 43 thereon. The rack is mounted on a block 45 fixed to a vertically reciprocating sleeve 47. The needle *s* is actuated by a link 50 pivoted to the head of the sleeve 47 and to the arm 51, pivoted at 52, on which the needle is mounted. The sleeve is actuated by mechanism for producing a dwell, including a pitman 58 and crank-pins 59, 60 on the crank-plate 28 of the shaft 3 which drives the upper needle-actuating pitman 25. The means for rotating the needle and looper mechanism are described in Specification 185,711.

Thread-cutters and thread-end holders.—Fixed nipping and cutting blades 83, 85 adjustably secured on the turret have lateral extensions 83', 85' coacting with a pull-out blade 86, the supporting arm 89 of which is pivoted at 90 concentrically with the blades 83, 85. The arm 89 is connected by a pin-and-slot mechanism to a lever 94 pressed towards lower position by a spring 96. An extension 94' of the lever engages a segmental guideway 99 carried by a yoke comprising arms 101, 102 and secured to a sleeve 105 sliding on a post 14. A collar 106 on the sleeve 105 is formed with a tooth or projection 107, Fig. 7. The yoke is guided by a pin 109 and is pressed downwards by a spring 112. A stop-arm comprising a projection 117 cut away at one side to form a shoulder 118 is mounted in bearings 115 on a bracket fixed to the stationary cloth plate 113, Fig. 3. A spring 120 surrounding the endwise movable shaft 116 of the arm and connecting a collar 119 thereon to one of the bearings presses the arm towards the sleeve 105, the arrangement being such that in one position of the arm the tooth 107 may slide past the stop-arm and in another it will be engaged by the shoulder 118. A rock-shaft 122 mounted in bearings on the base-plate 2 carries a tappet arm 124 to which is secured a lifting arm 126. The arm 124 lies in the path of a roller stud 127 mounted in the pitman 25, and when the arm 124 is actuated thereby the arm

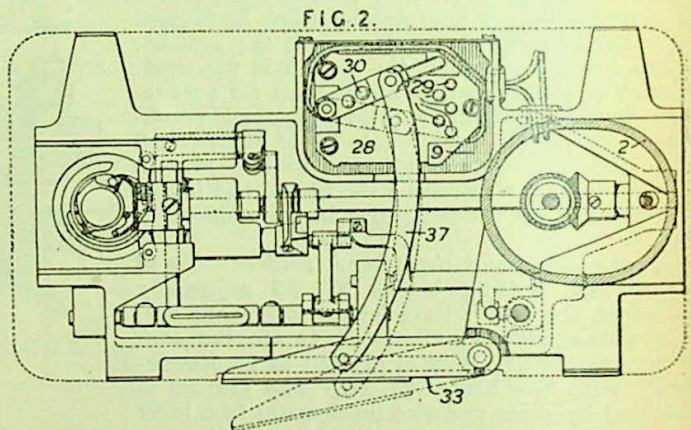


126 is moved to engage the guide-way 99 and lift it and the sleeve 105, producing a loop-engaging movement of the pull-out blade 86. The sleeve and guideway then fall owing to the stud 127 travelling beyond the end of the arm 124, and the thread is drawn out by the retraction of the blade 86 by the spring 12. The tappet arm is normally held out of contact position with the stud 127 by a spring 128 which engages a split collar 130 with a lateral wing 131. An arm 133 of a spring-controlled three-armed lever bears against the wing 131 and is moved to shift the shaft 122 endwise by the engagement with a roller 136 carried by the lever of one of two spaced projections 141 on a cam-disc. The ensuing rocking movement of the shaft 122 caused by the stud 127 allows the nose of the arm 133 to snap beneath the wing 131 with retraction of the shaft 122. The nose remains beneath the wing until the withdrawal of the projection 141 from the roller permits the lever to return to initial position. The movements of the stop-lever 117, 118, produced owing to the travers-

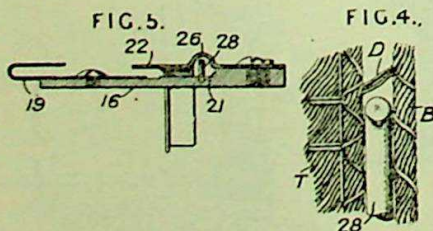
ing of the shifting frame and the movement of the lever 94 relatively to the guideway 99 produced by the rotation of the turret 36, co-operate with the lifting movement of the yoke and guideway 99 produced by the engagement of the stud 127 with the arm 124 in such a manner that, at the start of a buttonhole-producing cycle, the first loop produced is engaged by the pull-out 86 and drawn till the thread is nipped by engagement with the blade-end 83¹ and held till a few stitches have been made, after which, as the arm 94 rides out of the guideway 99, the blade is returned to initial position and releases the thread. At the completion of a buttonhole the tooth 107 is so situated relatively to the stop 117, 118 that the complete descent of the sleeve is not prevented by the shoulder 118, and the lever 94 is therefore moved by the spring 112 into extreme retracted position after engaging a loop which is then brought into contact with the cutting edge 85¹ and severed.

181,639. Fairweather, W., (Singer Manufacturing Co.). Sept. 2, 1921.

Driving.—The motor controller 23 of a self-contained electrically-driven sewing head, capable of attachment to any type of base, is actuated by a lever 33, so situated as to be operable by the work-guiding hand of the operator. The controller is housed in a small compartment 9, situated as shown in the hollow trough-shaped base, and the operative connections of the stitch-forming instrumentalities are entirely housed in the base and the goose-neck. The controller comprises a resistance element 28 with contact points 29, over which plays a contactor-arm 30, which is actuated, through a link 37, by the hand-lever 33. The motor is shown as attached to the standard 2 with its driving shaft spiral-gearred to the needle-shaft.



181,693. Singer Manufacturing Co.,
(Assignees of Drake, J. J.). June 16, 1921.
[Convention date].

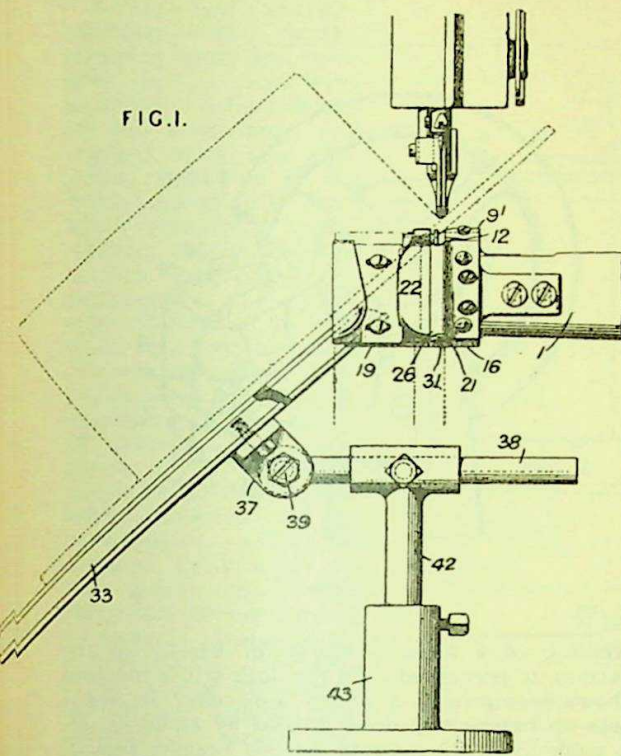


Hat-sewing machines.—A guide of special form is employed in stitching into hats sweatbands of

the type comprising an edging of braid T connected to a separate cord or bead B by cross-bars D. The band is guided between a shoulder 12 on a plate 9¹ secured to the work-supporting arm 1 and a flanged plate 19 adjustably secured to a plate 16 shouldered at 21 and mounted on the arm. A retaining plate 22 adjustably secured on the plate 16 is formed with a fluting 26 situated within which is a resilient finger the end of which bears against the head B. A flat spring 31 is mounted adjacent to the entrance to the guide to uncurl the edge of the band. The hat-support comprises a plate 33 secured to a bracket 37 adjustably mounted on a bolt 39 on a rod 38 adjustable in a standard 42 secured adjustably in a base 43.

(For Fig. 1 see next page.)

181,693.

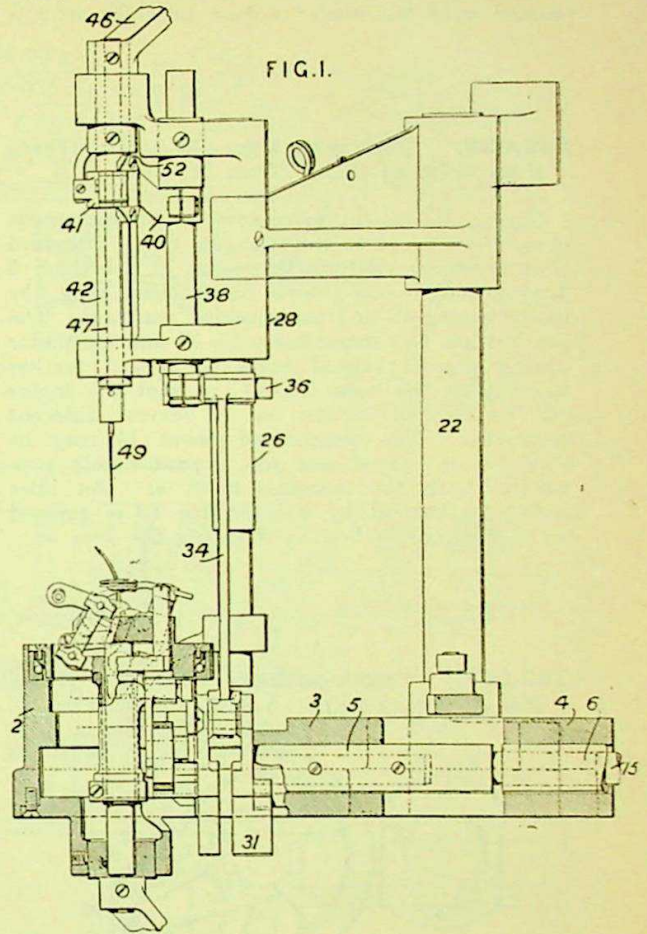


181,897. Fairweather, W., (Singer Manufacturing Co.). April 21, 1921.

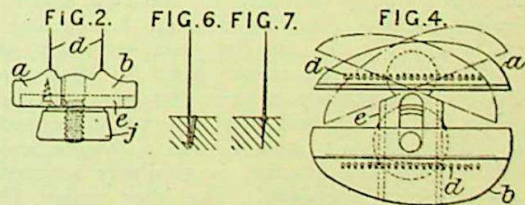
Button-hole sewing-machines; needles, driving.
—In a button-hole sewing-machine comprising rotary stitch-forming mechanism the needle-bar is driven by a link engaging a stud on the needle-bar and a crank on a shaft below the work-plate, this link being free from other connection with the moving parts of the machine. The upper needle-bar is mounted in a frame 28 carried by posts 22, 26 which are secured in a travelling stitch-frame comprising a turret 2 for the looper mechanism and bearings 3, 4 which receive a bushing 5 and a tubular boss 6 carried by a bracket mounted on a stud pivoted in the bed-plate of the machine. A driven bevel-wheel is journaled in the bracket and rotates a shaft 15 through a sliding connection. The shaft 15 terminates in a crank 31 connected by a pitman 34 and stud 36 to a reciprocating bar 38. Secured to the bar 38 is an arm 40 carrying a split boss 41 loosely surrounding a rotatable sleeve 42 which has at its upper end a crank 46. Mounted in a slot in the sleeve and secured to a needle bar 47 is a spline having lugs 52 embracing the boss 41 so that the reciprocating motion of the latter is transmitted to the needle bar which is also rotatable by the rotation of the sleeve 42. The eye-pointed needle 49 is mounted eccentrically in the needle bar.

(For Fig. see next column.)

181,897.



181,986. Hazledine, P. J. C. June 28, 1921.



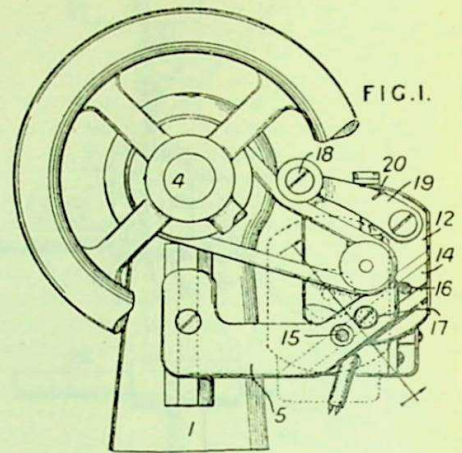
Darning.—Rows of pins *d*, upon which the work to be darned is impaled, are carried by base parts *a*, *b* which are adjustably secured together by a slide *c*. The part *a* is pivoted to the slide, which moves in a dovetailed groove in the part *b*. A wooden screw *j* secures the slide in place. Figs. 6 and 7 show methods of securing the pins in the parts *a*, *b* and Fig. 2 shows a preferred shaping of the parts *a*, *b*. The Provisional Specification describes also the following constructions, a base of soft material or one provided with holes into which pins are stuck after the work has been stretched over it; and a set of bases of different sizes made of sheet metal and permanently fitted with pins; a base made in the form of a ring to

which the work is secured by an outer ring pressed over the work; a base provided with a

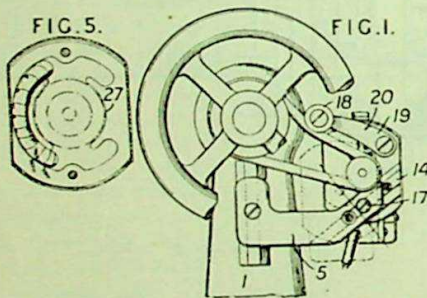
large number of pins which can be moved selectively into operative position.

182,033. Fairweather, W. C., (Diehl Manufacturing Co.). Aug. 31, 1921.

Sewing-machines; driving.—An electric motor is rigidly secured to the rear side of the standard 1 of a sewing-machine by means of a bracket 5 having tongue-and-groove connections with the motor casing 12 and the machine standard. The bracket has two screw holes 15, 17 and the motor casing several tapped holes 16 spaced further apart than the holes 15, 17, so that the motor can be secured in any one of several different positions. The tongue and groove 14 may be straight or curved and are approximately concentric with the machine shaft 4. An idler pulley 18 carried by a lever-arm 19 is pressed on to the driving-belt by a spring 20.

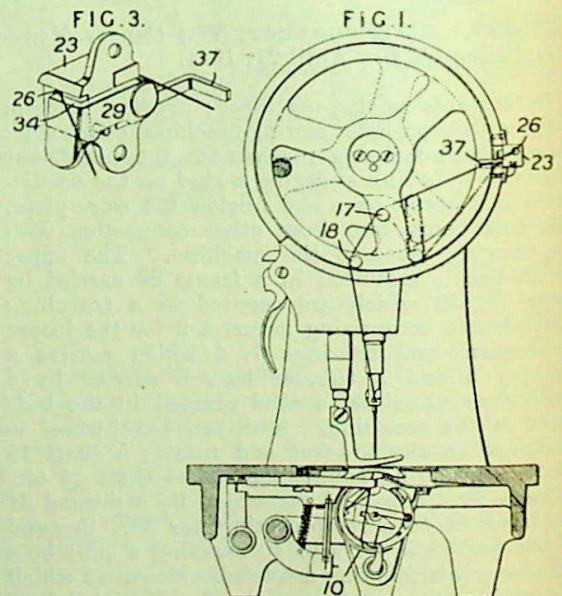


182,057. Fairweather, W. C., (Diehl Manufacturing Co.). Aug. 31, 1921.



Sewing-machines; driving.—In an electric motor unit, rigidly mounted on the rear side of a sewing-machine standard 1, Fig. 1, the field magnets 27, Fig. 5, are flattened vertically at opposite sides of the motor shaft so that the motor is substantially within the area of the machine bed. The motor is adjustably secured to a bracket 5 by a stud 17 and a tongue and groove 14 and the bracket is similarly secured to the machine standard. An idler pulley 18 carried by a lever arm 19 is pressed on to the driving-belt by a spring 20.

winding of a large quantity of thread on the take-up is prevented. In the lock-stitch machine shown, comprising a rotary loop-taker 10 and a take-up having two discs spaced by studs 17, 18, a guide-block 23 secured to the bracket-arm, is provided with a thread-nipping lever 29 having a thread-nipping jaw 34 and a tail-piece 37. The thread passes from the supply through a tension device, over the jaw 34 through an aperture 26



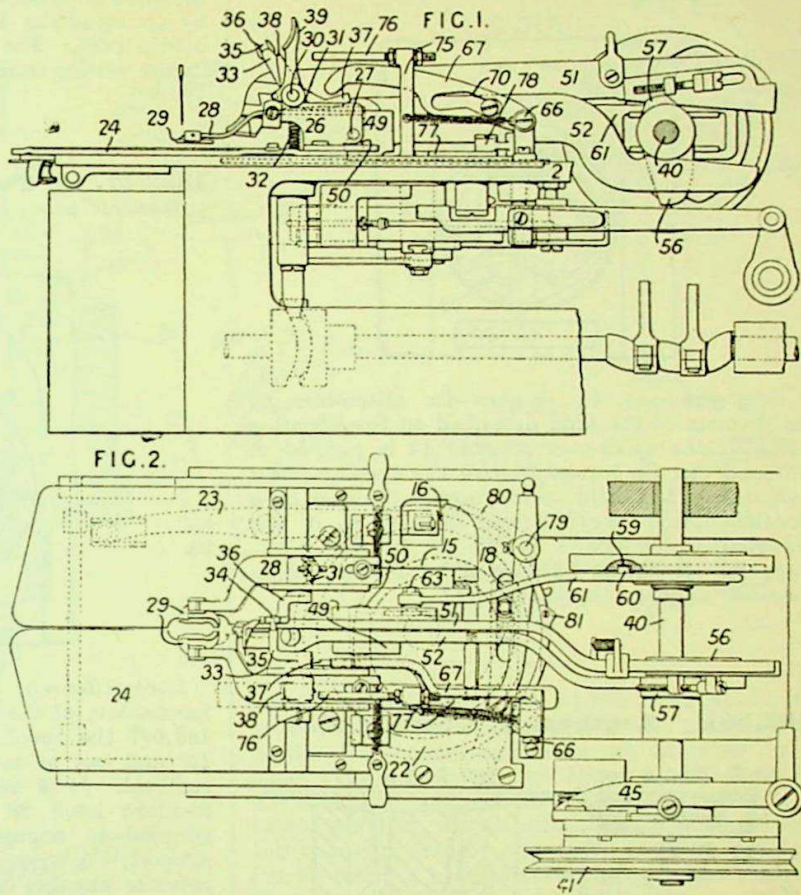
182,082. Singer Manufacturing Co., (Assignees of Ringe, J. C., and Nissen, H. C.). June 20, 1921, [Convention date].

Sewing-machines; governing needle-thread.—In sewing-machines having rotary take-ups a thread-nipping device actuated by the thread is arranged between the take-up and the thread supply so that in the event of a breakage of the thread between the take-up and the work the

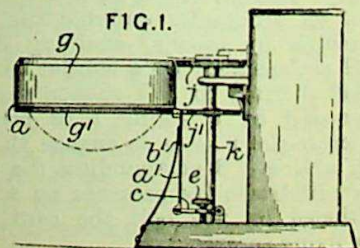
and over the rear end of the lever. In the normal operation of the machine the inclination of the tread in passing to the stud 17 is insufficient to cause depression of the lever, but if the thread breaks and begins to wind on the take-up in passing round the stud 18 its inclination is so altered that the lever is operated, the thread is nipped, and so broken.

182,209. **Fairweather, W.,** (Singer Manufacturing Co.). March 30, 1921.

Button-hole sewing machines.—The work-clamping arms are operated by a rock-lever mounted independently of the work-clamp and engaged by a stud projecting from one of the cutter-supporting arms which performs a reciprocating movement once in each button-hole producing cycle. The work-supporting plates 24 with which the clamping-plates 29 coact are supported on a slide-plate 22 traversed longitudinally by an arm 18 shifted by a cam-groove 15 in the feed-wheel, the lateral traverse being furnished by an intermediate slide-plate actuated by a lever 23 and groove 16. The clamp-feet 29 are carried by arms 28 pivoted at 27 in brackets 26. The arms 28 are moved to engage the work, against the pressure of springs 32, by cams 31 mounted on shafts 30 which are interconnected by arms 33, 36 having a pin-and-jaw connection 34, 35. One of the shafts 30 is furnished with an upwardly extending tappet-arm 38, a bent tappet-arm 37 and a finger-lever 39 for manual operation. The cutter-shaft 40, driven by a loose pulley 41 through a clutch operated by a lever 45, is provided with cams 56, 57 operating respectively on the rearward extensions of the cutter-supporting arms 51, 52 which are pivoted at 50 to a sliding block 49 and carry the upper and lower cutting tools. The block 49 and cutter-arms are traversed by an arm 61 pivoted to the block at 63 and having a stud 60 engaging a cam-groove 59 in a disc mounted on the shaft 40. A lever 67 pivoted at 66 in a bracket on the fixed bed-plate 2 and arranged to engage and operate the tappet-arm 37 has therein a slot

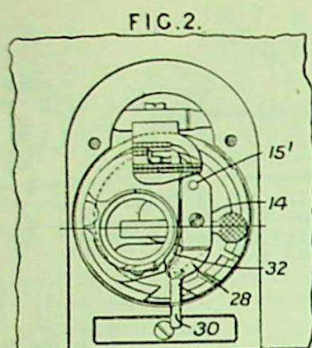


entered by a stud projecting from the arm 52. The stud in traversing the upwardly inclined part 70 of the slot moves the lever downward and closes the clamp. When the cutter-arms are retracted the clamp remains closed owing to the movement of the clamp-arm engaging projection 31 past a vertical line through its shaft 30. At the conclusion of a button-hole stitching operation the clamp is opened by the engagement with the tappet-arm 38 of a pin 76 mounted on a slide 75, 77 which is connected by a link 78 to an arm 79 mounted on a pin which also carries an arm 80 projecting into the path of a cam 81.

182,390. **Lehmann, H.** Nov. 7, 1921.

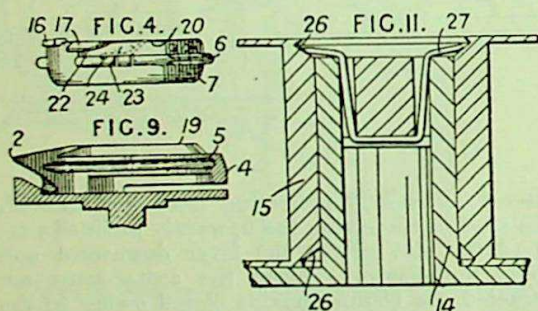
Hat-sewing machines.—In a machine for sewing sweat bands into hats of the kind in which the hat is supported on a rotatable ring, the ring is arranged to be positively rotated synchronously with the feed. The ring *g* is supported by a ring *a* secured to an arm *a'* against which bears a spring *b'*. The arm *a'* is pivoted to a hinged arm *c* adjustable by a screw *e*. A toothed ring *g'* secured to the ring *g* and projecting below the ring *a* is engaged by a pinion *j'* on the shaft *k* of the feed-wheel *j*.

182,547. Fairweather, W., (Singer Manufacturing Co.). April 1, 1921.



Lock-stitching by hooks.—In stitch-forming mechanism of the kind described on Specification 143,697, the spool-case retainer 14 is pivoted at 15' and can be turned to free the spool-case for removal. It is held in its normal position by a resilient latch 28 adjustably secured to it and adapted to engage a groove 30 in the work-support. A spring 32 carried by the spool-case retainer engages the spool-case.

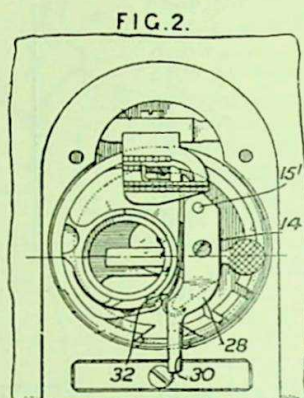
182,581. Leathem, J. April 11, 1921.



Lock-stitching by hooks.—An incomplete ring 4, forming part of a rotary hook, can be sprung outwards to admit a flange 6 on a bobbin case 7 into an interior groove in the ring. The free end of the ring is sprung open by a key which fits into a recess in the base of the hook, and which has an eccentric projection to fit into a recess on the ring. Set-screws fix the ring to the base when the bobbin case is in position. The flange 6 is cut away to allow the needle-thread loop to be carried inwardly by the loop-seizing hook 2, so as to engage on a loop flange 17. A lug 16 is provided on the bobbin case for engagement with the usual motion-preventing finger. An upstanding flange 19 is provided on the ring 4 to guide the outer arm of the thread loop over the casing, and to prevent it from engaging in the loop flange 17. A thread slot 23, terminating in a thread hole 24, is provided in the bobbin case and is covered by a flat tension spring 20. The tension spring extends beyond the hole 24 and fits under the loop flange 17, which closes a thread notch 22 in the spring. A bobbin 15,

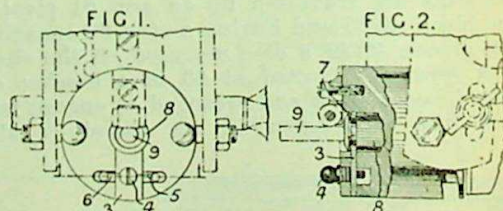
having a central bearing-hole, formed with locking-recesses 26 at each end, is rotatably mounted on a bobbin-case post 14, and is retained by spring-acting locking-arms 27 secured to the bobbin post. The rotary hook is adapted for use in the sewing-machine described in Specification 180,507.

182,747. Fairweather, W., (Singer Manufacturing Co.). April 1, 1921.



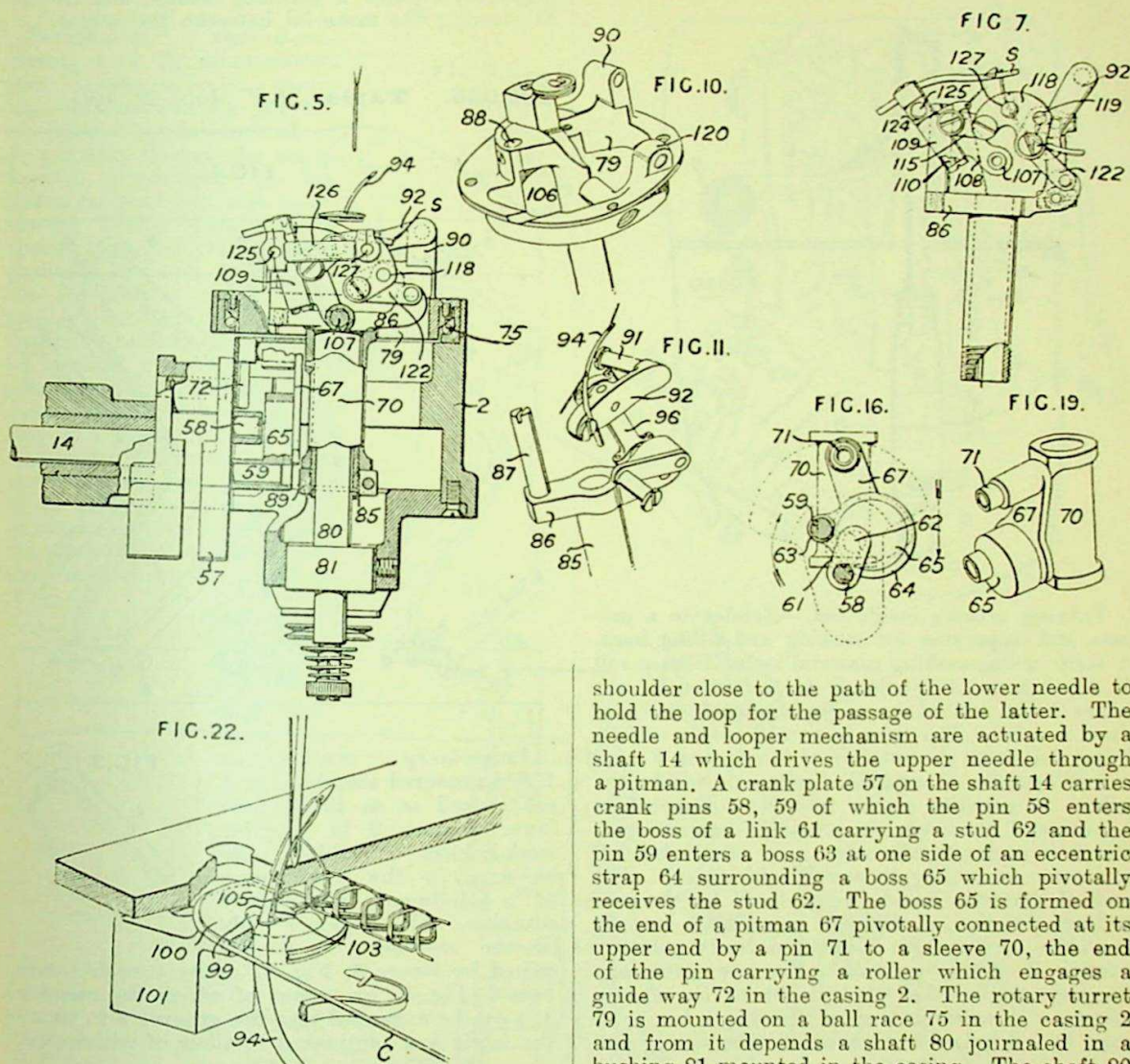
Lock-stitching by hooks.—In stitch-forming mechanism of the kind described in Specification 143,697 the spool-case retainer 14 is pivoted at 15' and can be turned to free the spool-case for removal. It is held in its normal position by a resilient latch 28 adjustably secured to it and adapted to engage a groove 30 in the work-support. A spring 32 carried by the spool-case retainer engages with the spool-case. Specification 182,547 is referred to in the Provisional Specification.

182,808. Ort, A., and Etablissements Athos, H. Drossner, et Cie. July 9, 1921, [Convention date].



Embroidery machines.—A cam is secured on the shaft of an automatic embroidering or festooning machine by means, enabling its rapid removal and replacement by a similar cam, comprising a bolt 3 fitted in a T-shaped slot in the cam and pressed by a spring 5 of piano wire placed in a cross-slot 6 so as to engage an annular groove 7 in a sleeve 8 surrounding the shaft 9. The bolt is withdrawn by pressure on a knob 4. When positioned by the bolt the cam is fixed in place by fixing-screws.

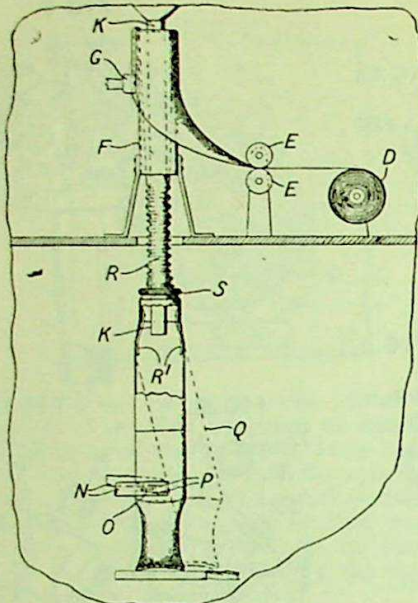
182,958. Fairweather, W., (Singer Manufacturing Co.). April 21, 1921.



shoulder close to the path of the lower needle to hold the loop for the passage of the latter. The needle and looper mechanism are actuated by a shaft 14 which drives the upper needle through a pitman. A crank plate 57 on the shaft 14 carries crank pins 58, 59 of which the pin 58 enters the boss of a link 61 carrying a stud 62 and the pin 59 enters a boss 63 at one side of an eccentric strap 64 surrounding a boss 65 which pivotally receives the stud 62. The boss 65 is formed on the end of a pitman 67 pivotally connected at its upper end by a pin 71 to a sleeve 70, the end of the pin carrying a roller which engages a guide way 72 in the casing 2. The rotary turret 79 is mounted on a ball race 75 in the casing 2 and from it depends a shaft 80 journaled in a bushing 81 mounted in the casing. The shaft 80 has secured thereto an inclined crank arm for rotating the turret. A tubular actuating rod 85 loosely surrounding the shaft 80 carries the cross head 86 a guide pin 87 on which enters an aperture 88 in the turret, Figs. 5, 7 and 10. The sleeve 70 fits loosely on the rod and communicates its reciprocation thereto by reason of confinement between the cross head and a thrust collar 89. The turret has at one side a boss 90 with a slightly inclined bearing to receive the fulcrum-stud 91 of the lower needle arm 92 to which is clamped the curved needle 94. The arm 92 is connected by a pitman 96 to the cross head 86 the vertical reciprocations of which cause an oscillation of the needle 94 in a circular path in a plane slightly inclined to the upper needle. The needle 94 passes through a U-shaped slot in a needle throat 100 off-set from a block 101, a tongue 103 serving as a loop detainer for the upper thread. A groove round the needle-throat receives a cord C, Fig. 22 which is led to the needle aperture through a transverse hole 105. Specification 185,711 is referred to.

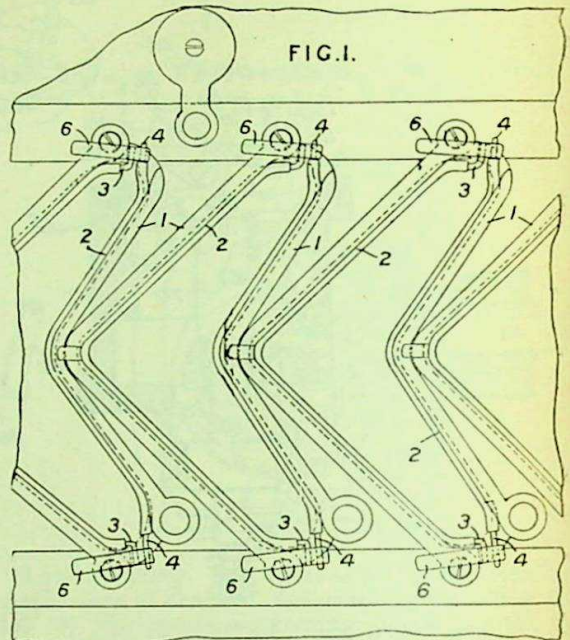
Button-hole sewing-machines; loop-stitching.—

A looper having endwise and sidewise movements is actuated by a member of a toggle device one element of which is connected to the looper by an independent link. The toggle device comprises a rocking member or elbow-lever 118, Figs. 5 and 7 connected to a pivotally mounted sleeve 109 by a link 115, and also by a link 126 engaging ball-studs 125, 127 to a crank 124 projecting from a shaft 110 carrying the looper and rotatably mounted in the sleeve 109. The pivot stud 107 of a swinging arm 108 carrying the tubular socket 109 is journaled in a boss 106 of a turret 79. The elbow-lever 118 is pivotally mounted on a stud 119 secured in a boss 120 on the turret. The lever 118 is also connected by a link 122 to a cross head 86 having a vertical reciprocatory movement. The continued movement of the elbow-lever 118 during the dwell of the vibratory movement of the rocking arm 108 produces an oscillatory movement of the pin 110 and a lateral swinging movement of the looper to bring part of the spreader blade immediately behind its

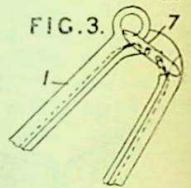
182,972. Bates, A. M. April 28, 1921.

Turning articles inside out.—Relates to a process and apparatus for making and filling bags. A strip of bag-making material is fed from a roll D through printing-rolls E to a former F, the edges being united by a sewing machine G to form a tube. The tube is turned inside out by being fed down the interior of the former F, and a feeding-tube K' extends downwards inside the tube. A quantity of the tube R is disposed in a puckered condition, to provide a reserve from which it is drawn off, beneath an elastic band S and over expanding means R', for filling. The end of the tube having been closed by the preceding operation, a charge of material is dropped from the feeding tube K into the freely swinging portion Q of the bag tube. The apparatus may be arranged so that the weight of the charge effects a downward feed of the bag-tube, or it may be fed by other means. A tube-sewing and

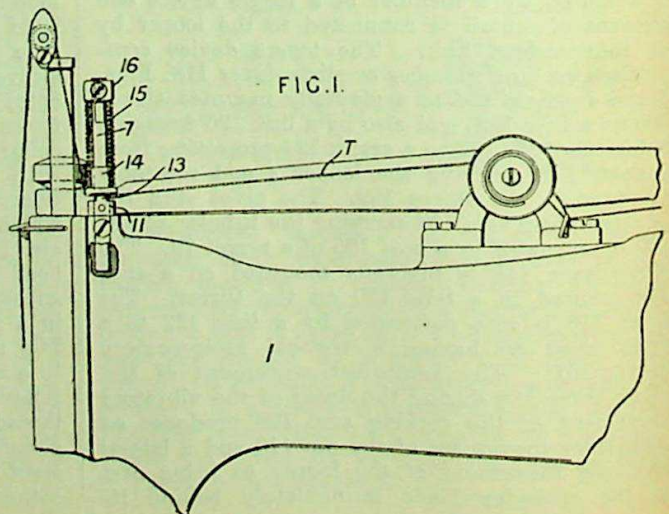
severing apparatus N is then moved across the bag-tube, needles P forming seams, and devices O severing the material between the seams.

183,026. Taylor, A. June 22, 1921.

Embroidery machines.—Rubber-covered members 3, 4 are shaped so as to fit into inner grooves 2 in angular work-holders 1, which may be fixed in the work-frame of a Heilmann embroidery machine. The adjacent ends of the members 3, 4 are joined by levers 6, Fig. 1, or by turnable members 7, Fig. 3, by means of which the members 3, 4 can be expanded into the grooves 2 to tension the fabric and contracted to allow of withdrawal.

**183,236. Fairweather, W.,**
(Singer Manufacturing Co.). April 19, 1921.

Sewing-machines; governing needle-thread.—To prevent breakage of needle-thread, a yieldable thread-guide is provided which is stronger than the tension device, and yields when there is an abnormal pull on the thread. A spring 15 surrounds a slotted rod 7, vertically fixed in the machine head 1, between an adjustably-fixed upper collar 16 and a sliding collar 14, which normally rests on shoulders 13 upset on a fixed collar 11. The thread T passes through the slotted rod 7 between the collars 11, 14.



183,256. Fairweather, W., (Singer Manufacturing Co.). April 21, 1921.

Button-hole sewing-machines; feed by co-operating jaws; needles vibrating laterally.—Mechanism for varying to either a predetermined or an arbitrary degree the work-spacing movements of the button hole-cutting, and work-spacing device described in Specification 185,711 and also applicable to the varying of the movements of laterally jogging needles or in the feeding or ruffling mechanisms for special classes of work comprises a manually actuated element which is arrested by a stop at a predetermined position under a normal impulse, but may be moved further to an arbitrary extent under an abnormal impulse owing to the elasticity of the stop. In the machine shown, a button-

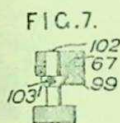
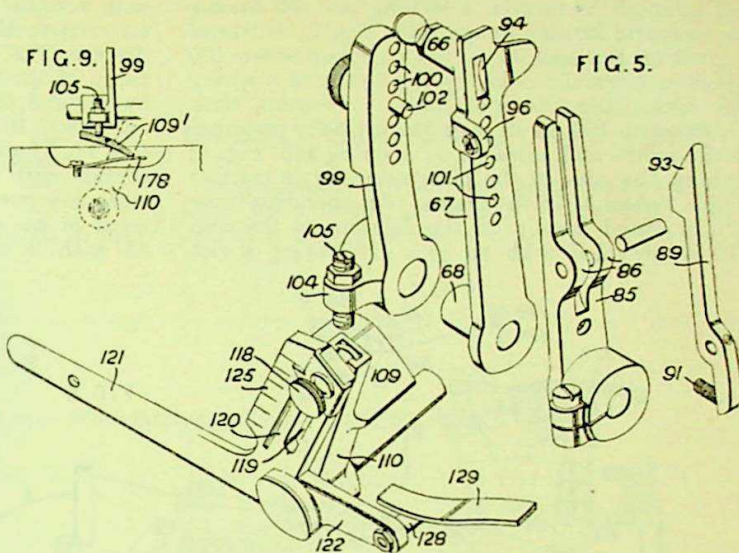
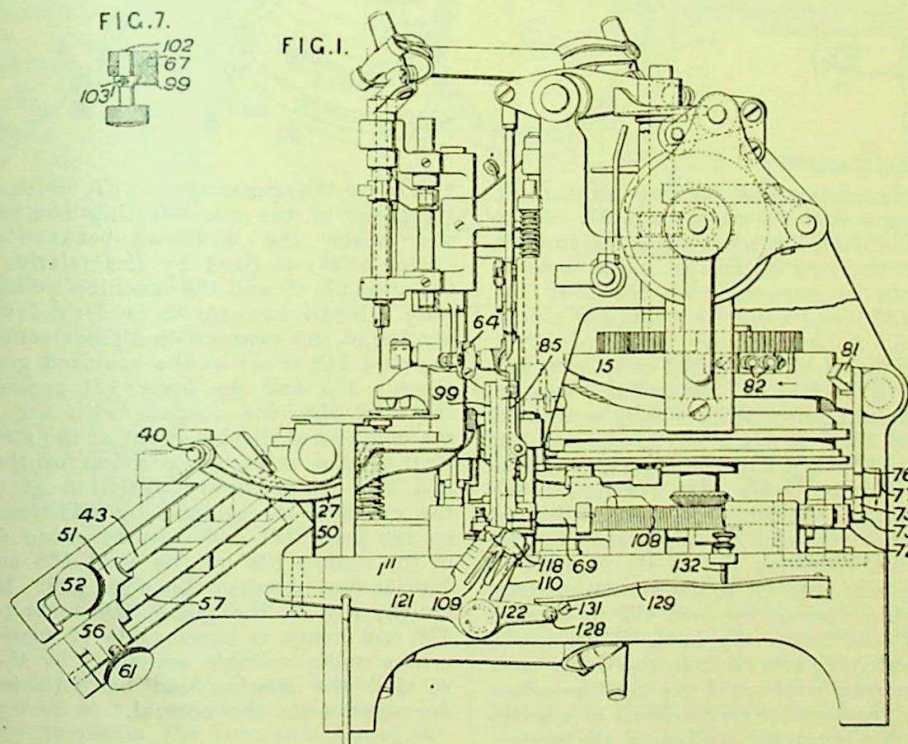


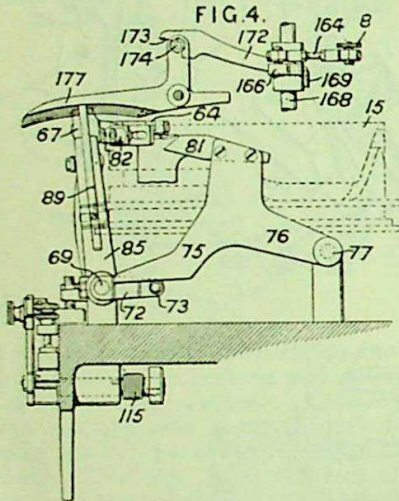
FIG. 1.



hole cutting and work-shifting arm 27 is pivoted at 40 to a frame connected by a link member to a swinging bracket having a hub 50. A guide-rod 43 of the frame carries a sleeve 51 which may be clamped thereon by a screw 52 and is pivotally connected to a sleeve 56 which may be clamped by a screw 61 on an inclined fixed guide-rod 57. The arrangement allows the radius of movement of the cutter-arm to be varied. A ball-stud on the arm 27 is connected by a link 64 to a projection 66 on a rock-arm 67. Fig. 5, the link 68 of which is loosely mounted

on a rock shaft 69, Figs. 1 and 4. An arm 72 fixed on the shaft 69 carries a stud 73 engaging an arm 75 of a lever 76 fulcrumed at 77 and carrying a tappet member 81 which lies in the path of roller-stud 82 projecting from the main cam 15. An arm 85 is mounted on the shaft 69 adjacent to the arm 67 and is locked to the arm by a latch-lever 89 pivoted in lugs 86 and pressed by a spring 91 so that its nose 93 engages a recess 94. A lateral lug 96 on the arm 67 ensures the correct alignment therewith of the arm 85. An arm 99 loosely mounted on the hub 68 of the

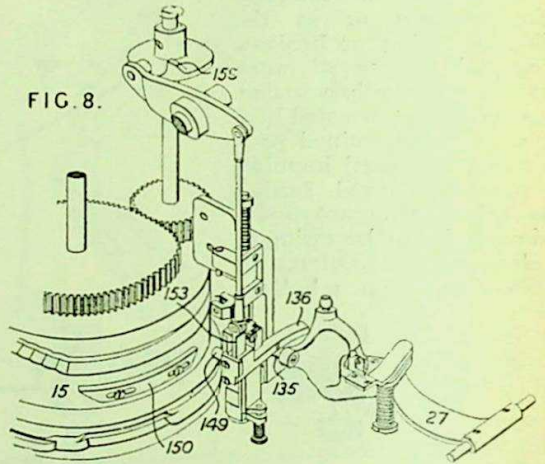
arm 67 has a series of holes 100 arranged at an angle with a similar series 101 in the arm 67, and adapted to receive a locking pin 102 having an eccentric locking flange 103¹, Fig. 7. A lateral lug 104 on the arm 99 carries a contact screw 105 which is normally held, by the action of a spring 108 controlling the rock-shaft, in contact with a stop plate 109 on an arm 110 pivotally mounted in the frame and acted on by a spring 115, Fig. 4, to keep the edge of the plate normally in contact with a recess 1¹ in the frame. An operating-lever 121 mounted loosely on the fulcrum of the arm 110 is provided with an arm 120 having a slot



controlled slide, causes the yielding pressure of a bar 136 upon a stud 135 on the arm 27. After the shift of the work has taken place the forcible depression of the arm to cut a button hole is effected by the engagement with the stud 135 of a plunger 153 reciprocated by a cam 159 geared to the cam 15. A hand-actuated starting-lever 8, Fig. 4, is connected by a link 164 to an arm 166 mounted on a rock-shaft 168 which has an oppositely extending arm 169 pivotally connected to a push rod 172. A notch 173 in the rod 172 rests on a pin 174 of a trip lever having an arm 177 with a bevelled lower edge resting on the inclined edge 93 of the latch 89. If it is desired to prevent the work-shifting movement of the cutting and work-shifting device the lever 8 is given a movement opposite to the normal starting movement which causes the arm 172 to depress the arm 177 and move the latch 89 so as to uncouple the driving-arm 85 from the driver arm 67. In the normal working of the machine when the distances between the button holes of a series are constant the retracted position of the projec-

tion 66 on the operating arm 67, which determines the throw of the work-shifting and cutting arm and hence the distance between successive button-holes, is fixed by the relative setting of the arms 67, 99 and the machine works automatically. When however it is desired to vary the spacing at any moment to a predetermined extent the stud 118 is set at the required graduation of a scale 125 and the lever 121 rocked to bring the stud 128 into contact with the spring 129 the consequent displacement of the stop plate 109 altering the retracted position of the arms 99 and 67. An arbitrary variation at the will of the operator is obtained by additional pressure on the lever 121 sufficient to cause deformation of the spring 129 by the stud 128 and hence a further movement of the plate 109. In a modification, Fig. 9, the plate 109¹ rests on a spring 178 and hence is susceptible of motion in both senses under suitable actuation by the lever 121 so that the spacing can be both increased or decreased from the normal.

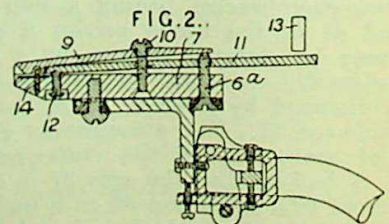
FIG. 8.



tion 66 on the operating arm 67, which determines the throw of the work-shifting and cutting arm and hence the distance between successive button-holes, is fixed by the relative setting of the arms 67, 99 and the machine works automatically. When however it is desired to vary the spacing at any moment to a predetermined extent the stud 118 is set at the required graduation of a scale 125 and the lever 121 rocked to bring the stud 128 into contact with the spring 129 the consequent displacement of the stop plate 109 altering the retracted position of the arms 99 and 67. An arbitrary variation at the will of the operator is obtained by additional pressure on the lever 121 sufficient to cause deformation of the spring 129 by the stud 128 and hence a further movement of the plate 109. In a modification, Fig. 9, the plate 109¹ rests on a spring 178 and hence is susceptible of motion in both senses under suitable actuation by the lever 121 so that the spacing can be both increased or decreased from the normal.

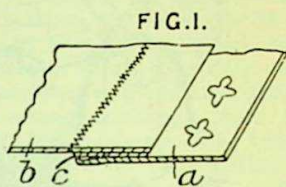
183,334. Patton, A. M. March 16, 1922.

Embroidery machines.—The needle clips in a Heilmann type embroidery machine each comprise a base 7 with a stop 14 for positioning the needle and a spring member 9 resiliently secured by screws 6^a, 10. The clip is opened by a lever 11 resting upon a pin fulcrum 12 and actuated by an arm 13. The parts are adjustable as shown.



183,553. Green, R. W., and Linens, Ltd. April 22, 1921.

Embroidery.—Articles such as table cloths, bedspreads, pillow cases, cushion covers, serviettes, and the like are provided with an ornamental fabric backing *a* extending partly under the main piece of material *b* and



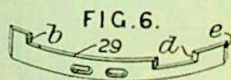
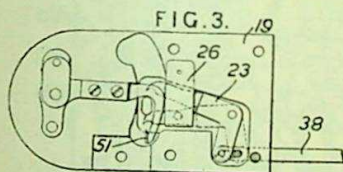
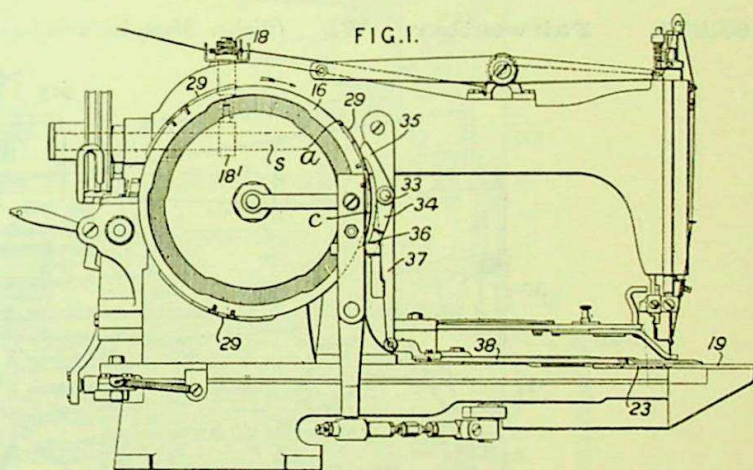
secured thereto by hem or other stitching *c*, and in some cases by scallop edge stitching along the edge of the main portion.

183,564. Butler, A. J. April 23, 1921.

Crochet hooks are provided with a scale marked along their length or with a hollow head containing a tape measure.

183,586. Fairweather, W., (Singer Manufacturing Co.). April 27, 1921.

Sewing-machines; thread end-holders and thread cutters; governing needle thread.—A sewing-machine of the kind producing groups of stitches as employed in button-attaching, tacking, &c., and of the type employing a rotary looper for a single-thread chain-stitch is provided with a thread nipper on the supply side of the needle and with a second thread nipper weaker than the first arranged beneath the work rest which is inactive while the needle performs the first reciprocation of a set, the free end

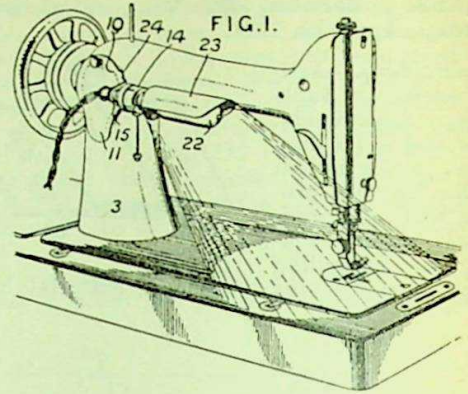


of the thread being at the same time drawn beneath the work by the looper, but is then moved automatically to retain the free end during the second reciprocation of the needle. The nipper-arm 23, shown as mounted below the work-plate 19 of a machine for button-attaching provided with means for jogging the work-support, is actuated by a link 38 connected to an arm 37 mounted on a rock-shaft 33 rocked by a double-armed lever 34 engaging cam-plates 29 on the periphery of the cam-wheel 16. The nipper is in contact with an adjustable spring 26 and nips the thread against the plate at the side of the needle-throat. The cam-plates are so arranged that the arm 36 of the lever 34 is in contact with the part *e* of a cam-plate at the commencement

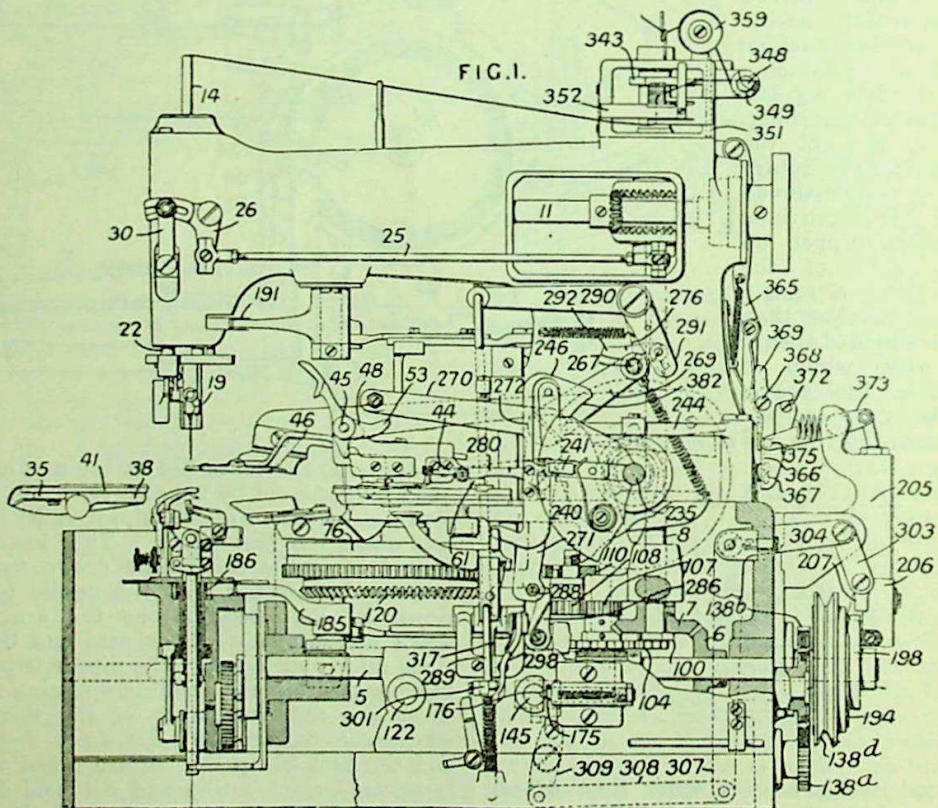
of a group of stitches and as the needle descends the arm is moved by the cam to ensure the retention out of action of the nipper until the needle has made the first stitch. The loose end of thread is at the same time drawn through the work by the looper. As the needle is half-way down on its second stroke the arm 36 rides down the surface *d* of the cam and the arm 35 rides up the surface *b*. The nipper is moved into nipping position and yieldingly retains the thread until the commencement of the third stroke, whereupon the arm 35 rides down the surface *a* and the arm 36 up the surface *c* and the nipper is moved out of action and withheld during the rest of the stitch-forming cycle. A thread-nipper 18, opened by a cam 18' on the needle-shaft *s*, and stronger than the nipper 23 nips the thread from just before the entry of the needle into the work on the down-stroke until it has lifted three quarters of its distance above the work on the up-stroke. The effect is that in the second needle-stroke the looper draws sufficient thread from the free end for part of the loop against the tension of the nipper 23, but obtains the remainder from the thread supply after the release of the nipper 18 on the up-stroke. A thread-cutter 51 pivoted to the work plate and operated by the overthrow action of the stop mechanism cuts the last loop of a series close to the work.

183,738. Fairweather, W., (Singer Manufacturing Co.). Sept. 2, 1921.

Sewing-machines; illuminating-apparatus.—An electric light socket 14 is rigidly mounted in an ear 15 on a cover-plate 11, which closes the usual inspection opening 10 in the rear of the bracket-arms 3 of a sewing-machine. The socket 14 receives a lamp bulb 22 and supports a shallow reflector 23 which, in conjunction with the bracket arm, shields the operator's eyes. The position of the light is such that no objectionable shadows are thrown on the work, vibration is reduced to a minimum, and the attachment can be permanently fastened to a drop-head or a portable sewing-machine. A stop lug 24 on the cover-plate 11 contacts with the rim of its seating to prevent the lamp from sagging.



183,873. Fairweather, W., (Singer Manufacturing Co.). Feb. 1, 1921.



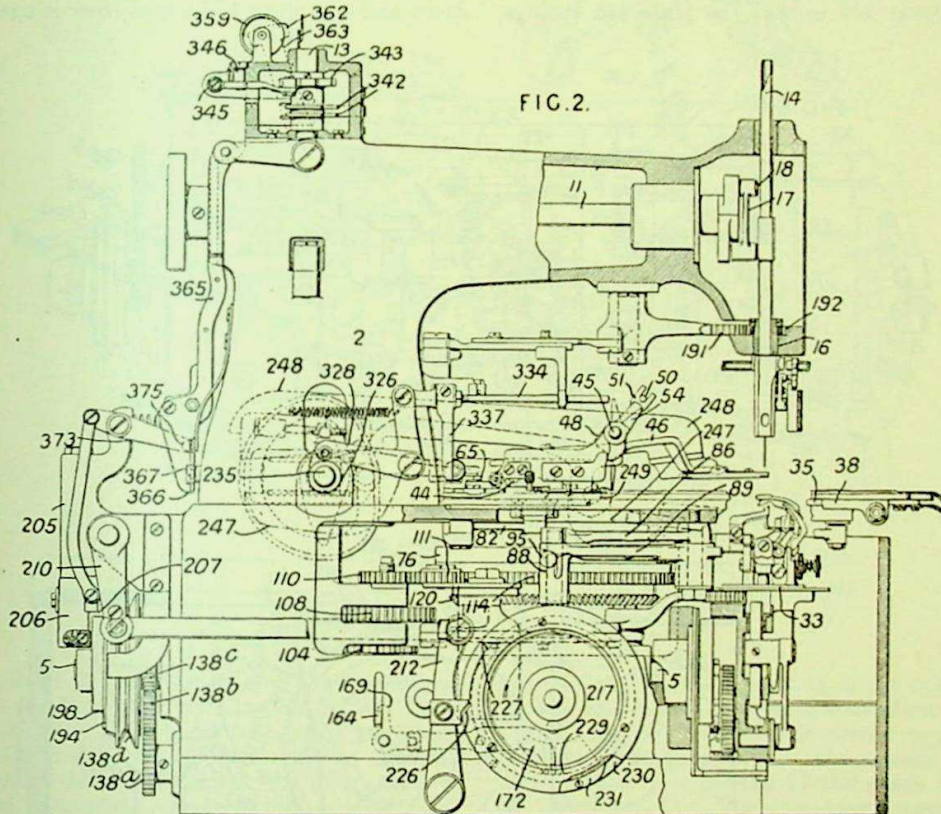
Button-hole sewing-machines.—The main feed-cam is arranged to secure the formation of the button-hole B, Fig. 25. The length of the button-hole is determined by the point in the feed-cycle at which stitching commences, and this is determined by an auxiliary control 217. The auxiliary control may also be used to give additional lateral movement to the work-clamp to vary the button-hole, as, for example, by the addition of barring stitches *a*. Interchangeable auxiliary controls are provided for different button-holes. During stitching, the feed-cam is rotated step by step from the stitching-shaft

and at other times is given a rapid movement from a continuously-rotating shaft 138. The button-hole is cut after being stitched and the work-clamp is opened from the cutter shaft: these operations can be manually prevented. Specifications 9842/13 and 164,858 are referred to.

Work clamps, closing, spreading, and opening. As described in Specification 10039/14, the upper clamping-members 46, Figs. 1 and 2, are mounted on spindles 44, and are closed on to the clamp plates 41 by cams 48 carried by rock-shafts 45, connected by levers 50, 51 so as to rotate

together. The clamp plates 41 are pivoted on the plate 35, the latter being mounted so as to be laterally movable in a frame 38, slidable in the main frame. Longitudinal movement of the clamp is constant, and is determined solely by the feed wheel 76, which is turned quickly to move the clamp from cutting to stitching position, and back again after stitching, from a rapid-feed shaft 122, by bevel-wheels 121, 120, Figs. 6 and 7; and is given an intermittent movement during stitching from the main shaft 5 through bevel-wheels 6, 7, special pin-and-tooth wheels 100, 104, gear-wheels 107, 108, 110, 111,

114, and a one-way ratchet connection. To start the machine, a rod 289, Fig. 1, is depressed and held by a catch 298, riding over a block 301; the rod 289 rocks a bell-crank lever 290, 291 to draw a spring-pressed lever 292, and with it a lever 276 (Fig. 13), rearwardly. A spring-pressed pin 267 is thereby permitted to enter a cam-groove in a continuously rotating wheel 243. Rotation of this wheel gives one complete oscillation to a plural-armed lever pivoted at 272, Fig. 1, and the pin 267 is then ejected from the cam-groove. The plural-armed lever first rocks counter-clockwise; thereupon an arm 270 rocks a clamp-closing



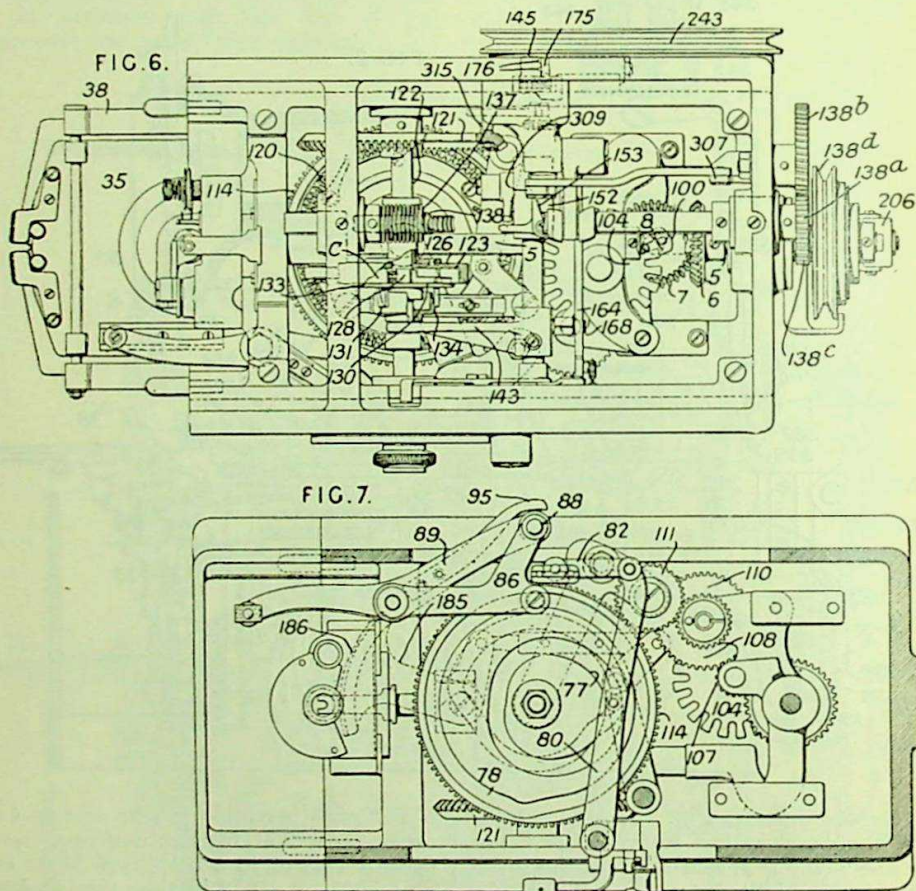
lever 53, a latch-lever 280, Fig. 13, falls behind the end of a toggle-actuating lever 61, and the pin 267 trips the lever 292, and releases the lever 276 in readiness for it to engage the pin 267 when the latter is ejected from the cam-groove. On the clockwise movement of the lever 269, 270, 271, the lever 280 rocks the lever 61 to straighten the usual toggle device Fig. 13, for spreading the clamps. The unspreading and opening of the clamps are occasioned by a cam 326 on a cutter shaft 235. This cam rocks a bell-crank lever 328, Fig. 2, and pushes forward a rod 334, which rocks a lever 54 on the clamp-closing shaft 45 while the depending arm 337 strikes the tail 65 of the link 60, Fig. 13, to bend the toggle. The invariable longitudinal motion of the clamp is transmitted to the slide 38 by a lever 80, and a link 82, Fig. 7 from a cam-groove 77 in the main feed-wheel 76. Lateral motion is given to the plate 35 by one end of a lever 89, Fig. 2, working in a longitudinal slot in the plate. The lever 89 is connected by

a vertically movable pin 88 either directly to a cam-groove 230 in the auxiliary feed-wheel or control 217, or to a bell-crank lever 86, actuated by a cam-groove 78 in the main feed-wheel. The connection may be changed automatically by a block 231 in the cam-groove 230, or by means of a finger-piece 95 on the pin 88. The pin can be removed manually out of engagement with the control 217.

Actuation of feed cam. During the rocking of the plural-armed lever, the stud 288, Fig. 13, on the arm 271, first rides over the spring-pressed arm 286 and on its return forces it downwards, thus rocking a lever 285, 283 and a plate 152 pivoted in a block 146, against a spring 153. The block 146 is part of an axially movable shaft 145, which is yieldingly held by a spring-pressed knob 175, Fig. 1, engaging in one of two recesses 176 at the end of the shaft. A forked lever 143, Fig. 6, fixed to the shaft embraces a groove in the hub of a cone 134 slidably mounted on the rapid-feed shaft 122 and a rearward extension 168 of the

lever 143 coacts with a link 164, which is continuously reciprocated from an eccentric on the continuously rotating shaft 138. The rocking of the plate 152 allows the lever 147, Fig. 13, pivoted to the side of the block 146, to be pressed down by a spring 151 and to engage a pin 157 by which the link 164 is connected to its operating-lever 158. The pin 157 engages an abrupt shoulder 149, and moves the shaft 145 and the cone 134 axially. The movement closes a clutch C and connects the rapid-feed shaft 122 to a continuously-rotating shaft 138 through a worm 137 and worm-wheel 135 integral with the clutch member 126. The return motion of the pin 157 forces the lever 147 up and the plate 152 springs

back underneath it. The rapid-feed shaft 122 actuates the main feed-wheel 76 and the auxiliary element 217 and the work is moved from cutting to stitching position. When stitching position is reached, a shoulder 226, Fig. 2, on the auxiliary control 217 forces a lever 212 rearwardly and throws in the clutch of the stitching-shaft. At the same time a projection 229 on the control 217 rocks a lever 172, Fig. 2, and a latch lever 169, to permit the link 164 to rise and engage the arm 168, Fig. 6, of the shaft 145. The latter is then moved with the sliding cone 134 to open the clutch C and disconnect the rapid feed; on the return of the link 164 the arm 168 forces the link down and the lever 169 snaps over it again. When



the stitching is completed the lever 212, Fig. 2, moves forwardly over the shoulder 227 on the control 217, and rocks a stop lever 205. Prior to the disengagement of the stitching clutch a sliding block 206, Figs. 2 and 13, in the lever 205 is raised by a cam 194 and through mechanism 303, 304, 307, 308, and 309 rocks the plate 152, and allows the lever 147 to drop and so be actuated to connect the shafts 138 and 122. The clamp is thereupon returned quickly to cutting position. The point 229 on the wheel 217 then trips the levers 172, 169 to allow the link 164 to throw out the clutch C and stop the rapid feed.

Starting and stopping-gear. — On the main shaft 5 is rotatably mounted a continuously running pulley 138^d, which drives the stitching-

shaft through the usual clutch and also drives the shaft 138, through gearing 138^a, 138^b, 138^c. The stop lever 205 is pivoted in the frame, and the sliding block 206 has a tooth 207 to engage a notch 195 in the clutch ring. When the control 217 rocks the levers 212, 210 rearwardly, it disengages the tooth from the notch and allows the clutch to rotate the main shaft 5. At the completion of the stitching, the stop-lever is rocked back, the block 206 is raised by the cam-surface 198 and the pressure of the block opens the clutch and finally the tooth drops into the notch and stops the stitch-forming mechanism positively.

Buttonholes, cutting. — As described in Specification 10038/14, the upper and lower cutter levers 247, 248, Fig. 2, are mounted on a fulcrum pin

249. They are moved bodily between cutting and retracted positions and are actuated for cutting by cams on the single revolution cutter actuating shaft 235. Detachably secured to the upper lever is one of a series of interchangeable anvils of different lengths, and dovetailed into the lower jaw is the shank of an eyed or a straight-bladed cutter knife. When cutting position is reached, the

concentric portion of the cam-groove 77 in the main feed-wheel holds the clamp stationary whilst a projection 315 on the bevel-wheel 121, Figs. 6 and 7, trips one end of a lever 317, Fig. 1. The other end presses inwards a cam-plate end 246 of a lever 244 and releases the radially sliding block 241 to connect the disc 240 and the shaft 235 to the continuously revolving belt-wheel

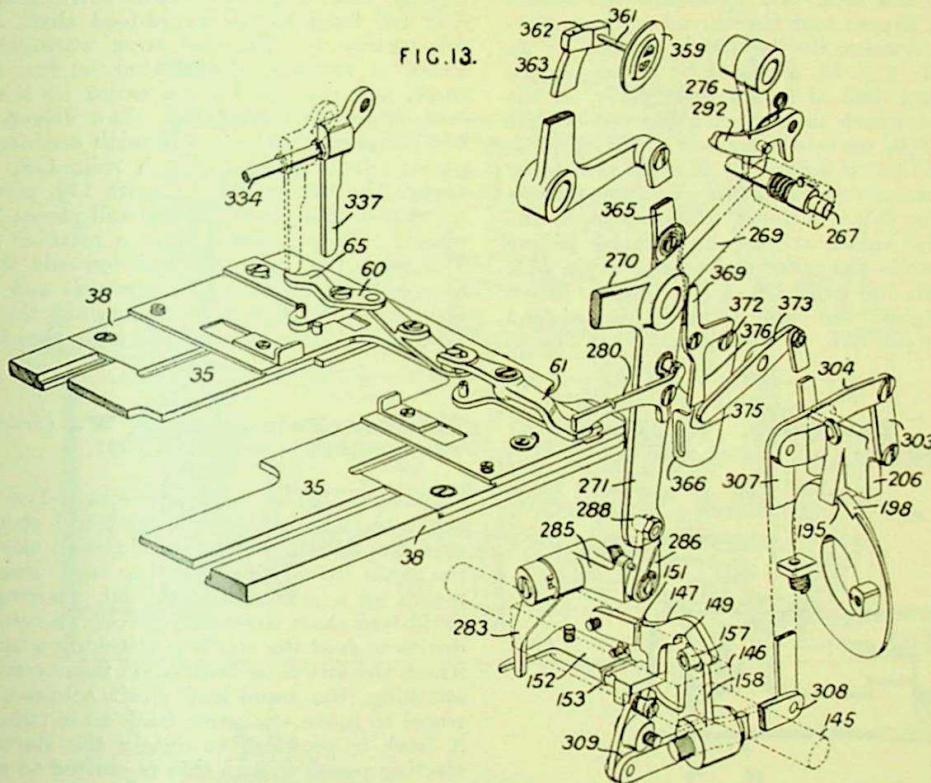


FIG. 13.

243. The lever 317 also trips the catch 298, and allows the starting-rod to ascend. The lever 214 is, thereafter, controlled by a cam-groove on the hub of the disc 240, and is moved towards the belt-wheel 243 in time for the block 241 to engage the eccentric surface 382 on the cam-plate and thereby retract the block 241 and uncouple the cutter shaft. The shaft is stopped

positively when the block 241 hits a stop shoulder on the cam-plate. A spring-controlled latch arm snaps over the block and prevents any rebound.

Stitch-forming devices. The needle bar 14 is reciprocated by a pitman 17 and crank 18 secured on the shaft 11. The loop-taker mechanism is described in Specification 9460/12. The rotary sleeve 16 and the loop-taker turret 33 are turned

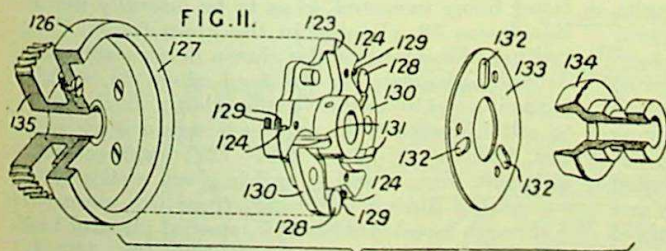


FIG. 11.

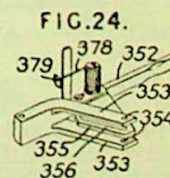


FIG. 24.

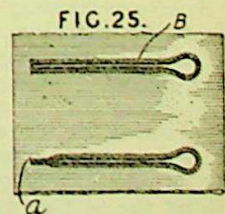


FIG. 25. B

for the stitching of the buttonhole eye by gears 191, 192 and 185, 186 actuated from the main feed-wheel.

Needles, vibrating laterally.—The arrangement of the laterally jogging needle block 19 is described in Specification 15048/15; the jogging-rod 22, Fig. 1, is actuated by a cam on the vertical shaft 8. The cam is embraced by a lever connected to the

rod 22 by a link 25, a slotted lever 26 and an adjustable link 30.

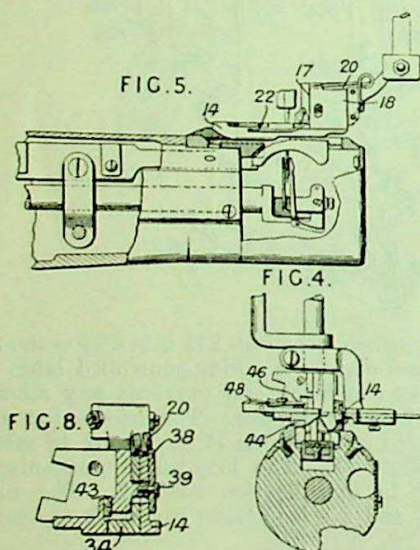
Governing needle thread.—A vertical shaft 13, Fig. 2 rotates oppositely to and at the same speed as the shaft 8; fixed thereto are horizontal take-up cams 342 and a thread-nipper actuating-cam 343. The cam 343 actuates a lever 345 pivoted at 346 to close a nipper-pin 348, Fig. 1, upon an

abutment piece 349. A lever 352, Figs. 1 and 24, has inwardly extending arms 353, with thread-apertures 354, which lie above and below the take-up cams 342. A stripper plate 355 also attached to the lever 352, has a thread-slot 356 and lies between the cams. The lever 352 can be swung into a threading position. A slack-thread controlling-spring 378 with a thread eye 379 is mounted on the lever 352 to engage the thread between the nipper and the thread-guiding apertures. The tension device 359 is opened by an axial pin 361, Fig. 13, actuated by a cam-surface 362 on an arm 363 of a bell-crank lever, to the other arm of which is pivoted a bar 365 with a slotted ear 366, entered by a screw 367, Fig. 2, threaded into the standard 2. Pivoted to the bar 365 is a three-armed latch 369 normally pressed against a pin 372. A lever 373 pivoted to the stop lever is linked at one end to the sliding block 206, while the other end carries a pin 375, coacting with the arm 376 of the latch. When stitching begins, the stop lever is rocked and removes the pin 375, so allowing the bar 365 to

drop and re-instating the thread tension. When the stop lever is shifted to stop the stitching mechanism and the arm 376 is moved to the right, the block 206, is raised by the cam-surface 198, the pin 375 is lowered and the arm 376 snaps over it; then when the tooth 207 drops into its notch, the tension device is opened.

The clutch C, Fig. 6 comprises a flanged driving-disc 126, Fig. 11, which surrounds a driven disc 123 fixed to the rapid-feed shaft 122. The driving-disc is attached to a worm-wheel 135, which is revolvably mounted on the rapid-feed shaft, and meshes with a worm on the continuously rotating shaft 138. The driven disc 123 has peripheral notches 124 with eccentric bottom walls; spring-pressed clutch rolls 128, in them engage the flange 127. Levers 130, pivoted upon the driven disc, have lateral tail-pieces 131 which project through slots 132 in a retainer plate 133. The cone 134, when forced towards the clutch, moves the tail-pieces 131 outwards and the levers 130 force the clutch rolls, against their springs 129, out of driving contact with the flange 127.

184,044. Thompson, W. P., (*Union Special Machine Co.*). July 23, 1921.



Sewing-machines; pressure-feet.—In a multiple-needle machine for trimming and stitching together overlapping fabric edges, the presser-foot has an auxiliary foot 14 slidably mounted in a guideway 17, 18 and pressed on to the fabric by a spring 20 above the guides and by a spring 22 acting on the forward part of the foot. A second auxiliary foot 34, Fig. 8, is mounted behind the portion 14 in the guideway 17, 18 and is separately pressed on to the work by a third spring. The feet 34 and 14 are held in place by a cover-plate 38, Fig. 8, and a pin 39 limits their downward movement so that they cannot project below the surface of the main-foot. A screw 43 can be used to lock the foot 34 in its lowest position. A third auxiliary foot 44, Fig. 4 is loosely mounted in the fore-part of the main foot and is pressed downwards by means of a spring 48 acting on a lever 46 to which the foot 44 is loosely attached.

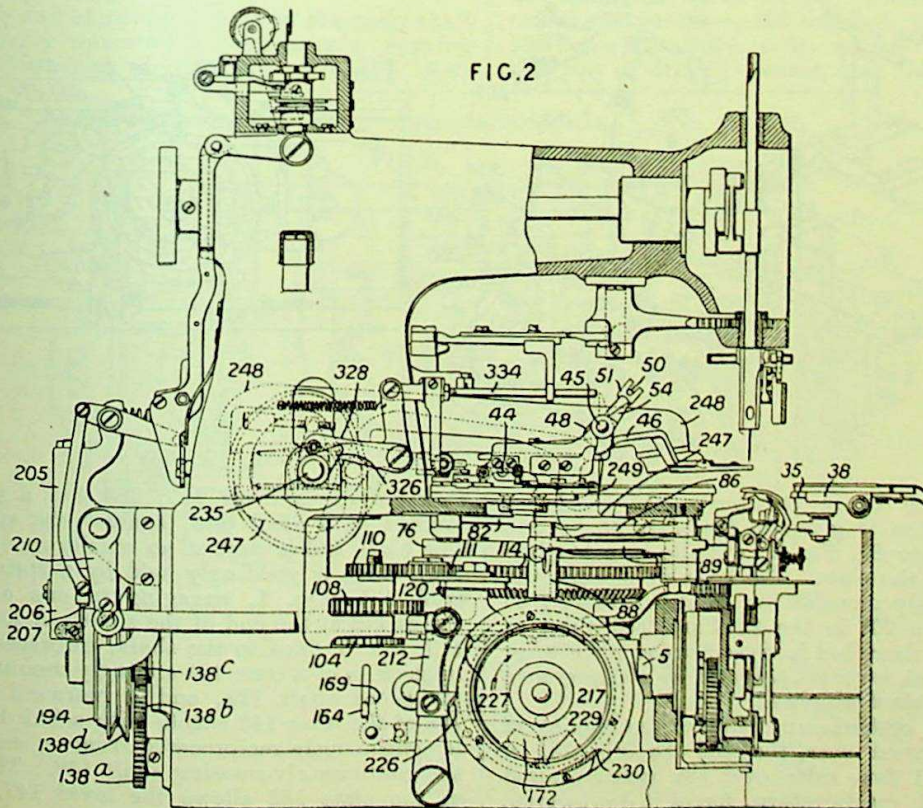
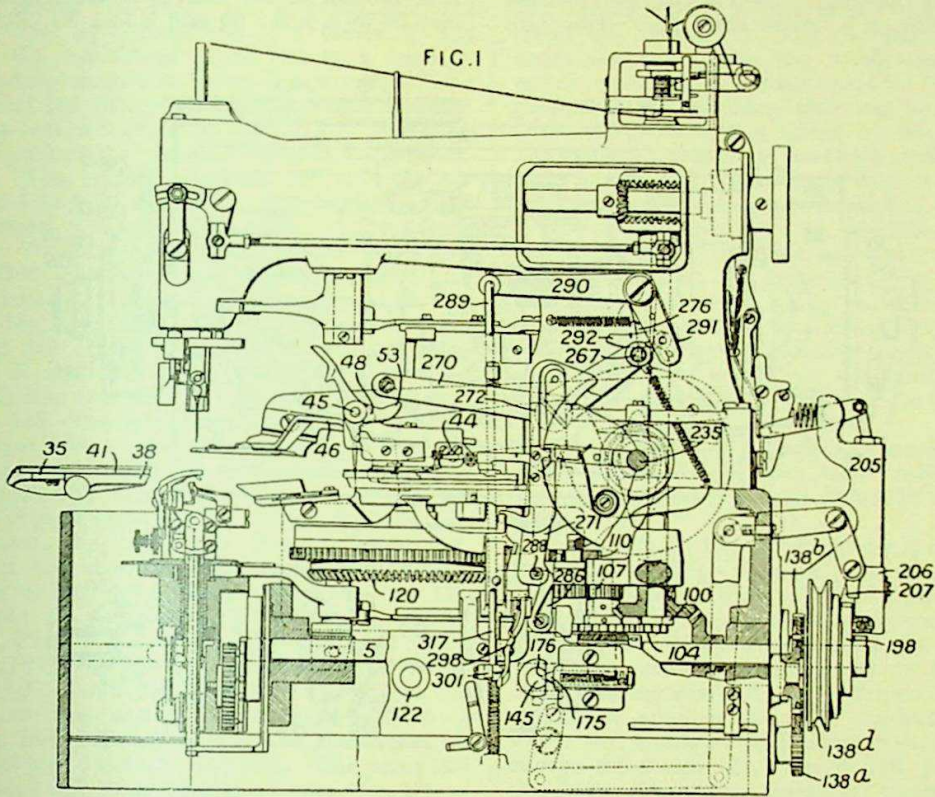
184,134. Fairweather, W., (*Singer Manufacturing Co.*). Feb. 1, 1921.

Button-hole sewing-machines.—The feeding-mechanism includes rapid-feed and stitching-feed actuating shafts which are clutched alternately to the main drive. On starting the machine, by means of a manually-operated starting-rod, the rapid-feed shaft is rotated through a rotary clutch-device to feed the work to stitching position, after which the stitching-feed shaft takes control: after stitching, the rapid-feed shaft actuates the feed-wheel to move the work back to cutting position. A latch is provided to detain the starting-rod in starting position, and this is shifted to release the rod by the cutter-mechanism starting-means which is tripped into action by means actuated by the rapid-feed shaft.

Works clamps, closing, opening. As described in Specification 10039/14, the upper clamping-members 46, Figs. 1 and 2, are mounted on spindles 44, and are closed on to the clamp plates 41 by cams 48 carried by rock-shafts 45, connected by levers 50, 51 so as to rotate together. The clamp plates 41 are pivoted on the plate 35, the latter being mounted so as to be laterally movable in a frame 38, slidable in the main frame. Longitudinal movement of the clamp is constant, and is determined solely by the feed-wheel 76, which is turned quickly to move the clamp from cutting to stitching position, and back again after stitching, from a rapid-feed shaft 122, by bevel-wheels 121, 120, Figs. 6 and 7, and is given a step-by-step movement during stitching, from the main shaft 5 through bevel-wheels 6, 7, special pin and tooth-wheels 100, 104, gear-wheels 107, 108, 110, 111, 114, and a one-way ratchet connection. To start the machine, a rod 289, Fig. 1, is depressed and held by a catch 298 riding over a block 301: the rod 289 rocks a bell-crank lever 290, 291 to draw a spring-pressed lever 292, and with it a lever 276, Fig. 13, rearwardly. A spring-pressed pin 267 is thereby permitted to enter a cam-groove in a continuously-rotating wheel 243. Rotation of this wheel gives one complete oscillation to a

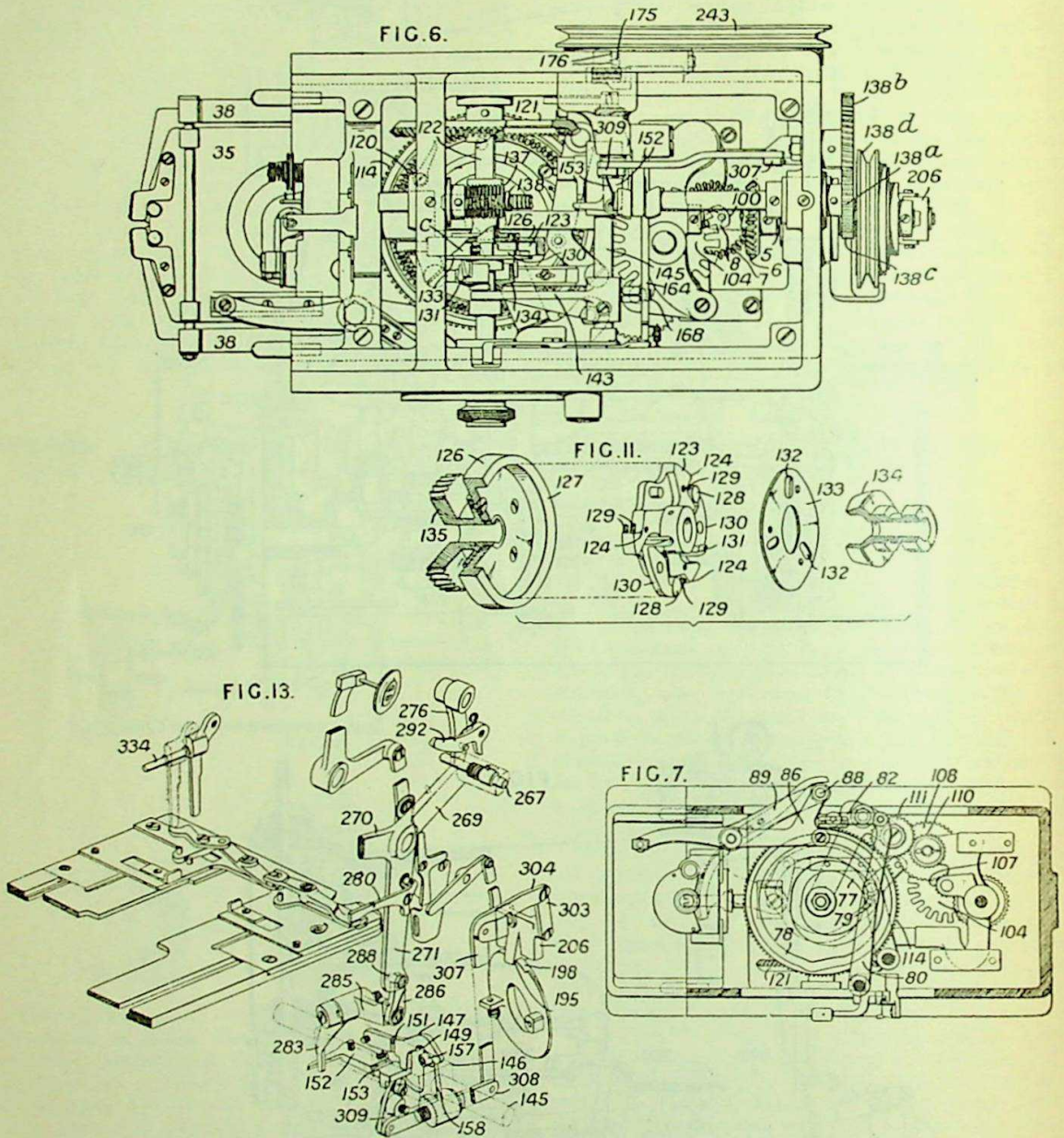
plural-armed lever pivoted at 272, Fig. 1, and the pin 267 is then ejected from the cam-groove. The

plural-armed lever first rocks counter-clockwise; thereupon an arm 270 rocks a clamp-closing lever



53, and the pin 267 trips the lever 292 and releases the lever 276 in readiness for it to engage the pin 267 when the latter is ejected from the cam-groove. The opening of the clamps is occasioned by a cam 326 on a cutter shaft 235. This cam

rocks a bell-crank 328, Fig. 2, and pushes forwards a rod 334, which rocks a lever 54 on the clamp-closing shaft 45. The invariable longitudinal motion of the clamp is transmitted to the slide 38 by a lever 80 and a link 82, Fig. 7, from



a cam-groove 77 in the main feed-wheel 76. Lateral motion is given to the plate 35 by one end of a lever 89, Fig. 2, working in a longitudinal slot in the plate. The lever 89 is connected by a vertically movable pin 88 either directly to a cam-groove 230 in the auxiliary feed-wheel or control 217, described in Specification 183,873, or to a bell crank lever 86, actuated by a cam groove 78 in the main feed-wheel.

Actuation of feed-cam. During the rocking of the plural-armed lever, the stud 288, Fig. 13, on the arm 271 first rides over the spring-pressed arm 286 and, on its return, forces it downwards,

thus rocking a lever 285, 283 and a plate 152, pivoted in a block 146, against the spring 153. The block 146 is part of an axially movable shaft 145, which is yieldingly held by a spring-pressed knob 175, Fig. 1, engaging in one of two recesses 176 at the end of the shaft. A forked lever 143, Fig. 6, fixed to the shaft, embraces a groove in the hub of a cone 134 slidingly mounted on the rapid-feed shaft 122, and a rearward extension 168 of the lever 143 coacts with a link 164, which is continuously reciprocated from an eccentric on the continuously-rotating shaft 138. The rocking of the plate 152 allows the lever 147, Fig. 13,

pivoted to the side of the block 146, to be pressed down by a spring 151 and to engage a pin 157 by which the link 164 is connected to its operating-lever 158. The pin 157 engages an abrupt shoulder 149, and moves the shaft 145 and the cone 134 axially. The movement closes a clutch C and connects the rapid-feed shaft 122 to a continuously rotating shaft 138 through a worm 137 and worm-wheel 135 integral with the clutch member 126. The return motion of the pin 157 forces the lever 147 up and the plate 152 springs back underneath it. The rapid-feed shaft 122 actuates the main feed-wheel 76 and the auxiliary element 217 and the work is moved from cutting to stitching position. When stitching position is reached, a shoulder 226, Fig. 2, on the auxiliary control 217 forces a lever 212 rearwardly and throws in the clutch of the stitching shaft. At the same time a projection 229 on the control 217, rocks a lever 172, Fig. 2, and a latch-lever 169, to permit the link 164 to rise and engage the arm 168, Fig. 6, of the shaft 145. The latter is then moved with the sliding cone 134 to open the clutch C and disconnect the rapid feed; on the return of the link 164 the arm 168 forces the link down and the lever 169 snaps over it again. When the stitching is completed, the lever 212, Fig. 2, moves forwards over the shoulder 227 on the control 217, and rocks a stop lever 205. Prior to the disengagement of the stitching clutch, a sliding block 206, Figs. 2 and 13, in the lever 205 is raised by a cam 194, and, through mechanism 303, 304, 307, 308, 309, rocks the plate 152, and allows the lever 147 to drop and so be actuated to connect the shafts 138, 122. The clamp is thereupon returned quickly to cutting position. The point 229 on the wheel 217 then trips the levers 172, 169 to allow the link 164 to throw out the clutch C and stop the rapid feed.

Starting and stopping gear.—On the main shaft 5 is rotatably mounted a continuously running pulley 138^a, which drives the stitching shaft

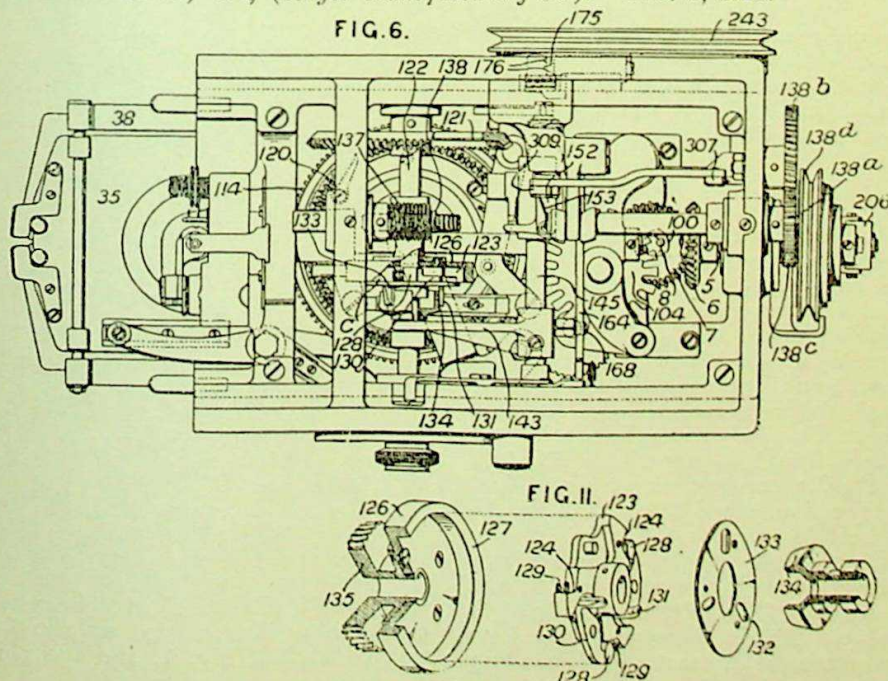
through the usual clutch and also drives the shaft 138, through gearing 138^a, 138^b, 138^c. The stop lever 205 is pivoted in the frame, and the sliding block 206 has a tooth 207 to engage in a notch 195 in the clutch ring. When the control 217 rocks the levers 212, 210 rearwardly, it disengages the tooth from the notch and allows the clutch to rotate the main shaft 5. At the completion of the stitching the stop lever is rocked back, the block 206 is raised by the cam-surface 198 and the pressure of the block opens the clutch and, finally, the tooth drops into the notch and stops the stitch-forming mechanism positively.

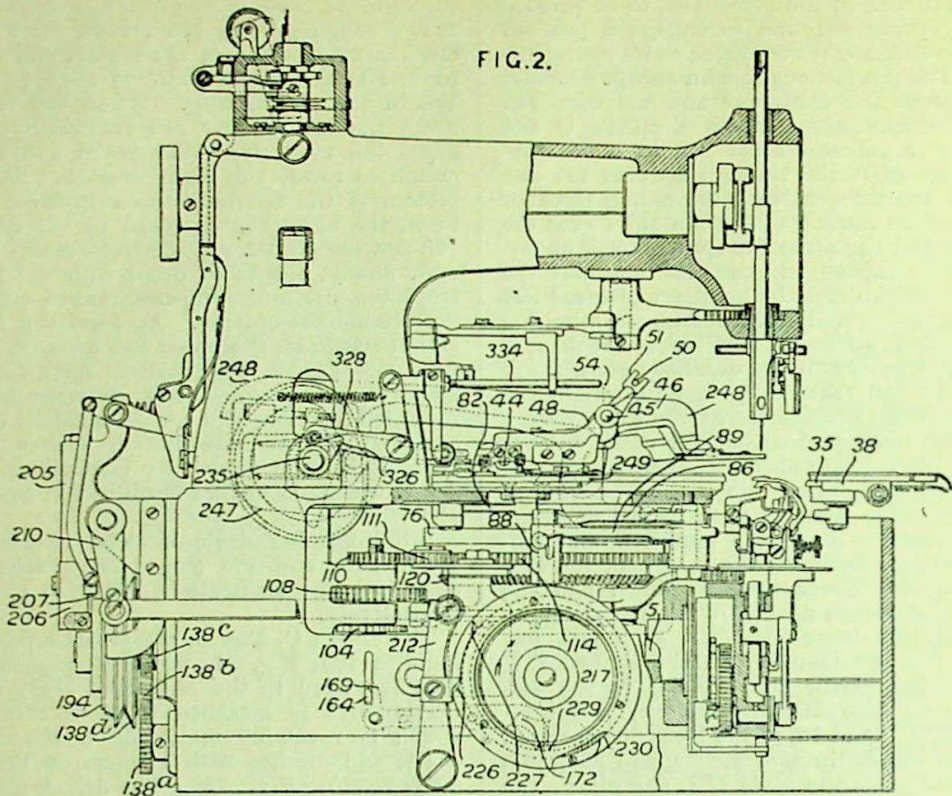
Buttonholes, cutting. As described in Specification 10038/14, the upper and lower cutter levers 247, 248, Fig. 2, are mounted on a fulcrum pin 249. They are moved bodily between cutting and retracted positions and are actuated for cutting by cams on the single-revolution cutter actuating shaft 235. The means for controlling the shaft 235 is the same as that described in Specification 183,873.

Stitch-forming devices. The needle-actuating mechanism and the loop taker mechanism are described in Specifications 15048/15 and 9460/12 respectively.

The clutch C, Fig. 6, comprises a flanged driving-disc 126, Fig. 11, which surrounds a driven disc 123 fixed to the rapid-feed shaft 122. The driving-disc is attached to a worm-wheel 135, which is revolvably mounted on the rapid-feed shaft, and meshes with a worm on the continuously rotating shaft 138. The driven disc 123 has peripheral notches 124 with eccentric bottom walls, and spring-pressed clutch rolls 128 in them engage the flange 127. Levers 130, pivoted upon the driven disc, have lateral tail-pieces 131 which project through slots 132 in a retainer plate 133. The cone 134, when forced towards the clutch, moves the tail-pieces 131 outwards and the levers 130 force the clutch rolls, against their springs 129, out of driving contact with the flange 127.

184,135. Fairweather, W., (Singer Manufacturing Co.). Feb. 1, 1921.





Button-hole sewing-machines. — A clutch is arranged to couple the feeding-mechanism with a continuously-running shaft; means are provided for connecting a continuously-moving clutch-actuating element with the clutch to throw the latter into and out of action.

Work clamps, closing, opening. As described in Specification 10039/14, the upper clamping-members 46, Figs. 1 & 2, are mounted on spindles 44, and are closed on to the clamp plates 41 by cams 48 carried by rock-shafts 45, connected by levers 50, 51 so as to rotate together. The clamp plates 41 are pivoted on the plate 35, the latter being mounted so as to be laterally movable in a frame 38, slidable in the main frame. Longitudinal movement of the clamp is constant, and is determined solely by the feed-wheel 76, which is turned quickly to move the clamp from cutting to stitching position, and back again after stitching, from a rapid-feed shaft 122, by bevel-wheels 121, 120, Figs. 6 and 7; and is given a step-by-step movement, during stitching, from the main shaft 5 through bevel-wheels 6, 7, special pin and tooth wheels 100, 104, gear-wheels 107, 108, 110, 111, 114, and a one-way ratchet connection. To start the machine, a rod 289, Fig. 1, is depressed and held by a catch 298 riding over a block 301: the rod 289 rocks a bell-crank lever 290, 291 to draw a spring-pressed lever 292, and with it a lever 276 (Fig. 13), rearwardly. A spring-pressed pin 267 is thereby permitted to enter a cam-groove in a continuously-rotating

FIG. 13.

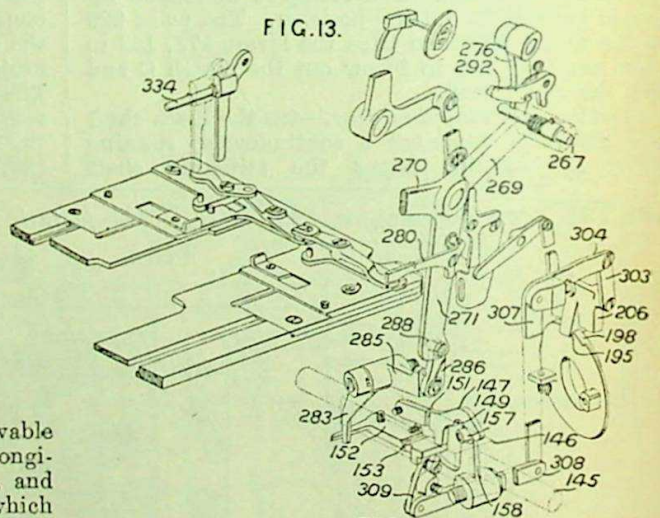
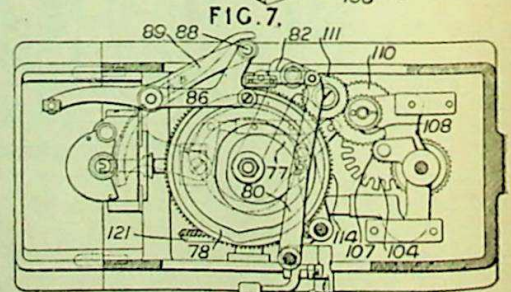


FIG. 7.

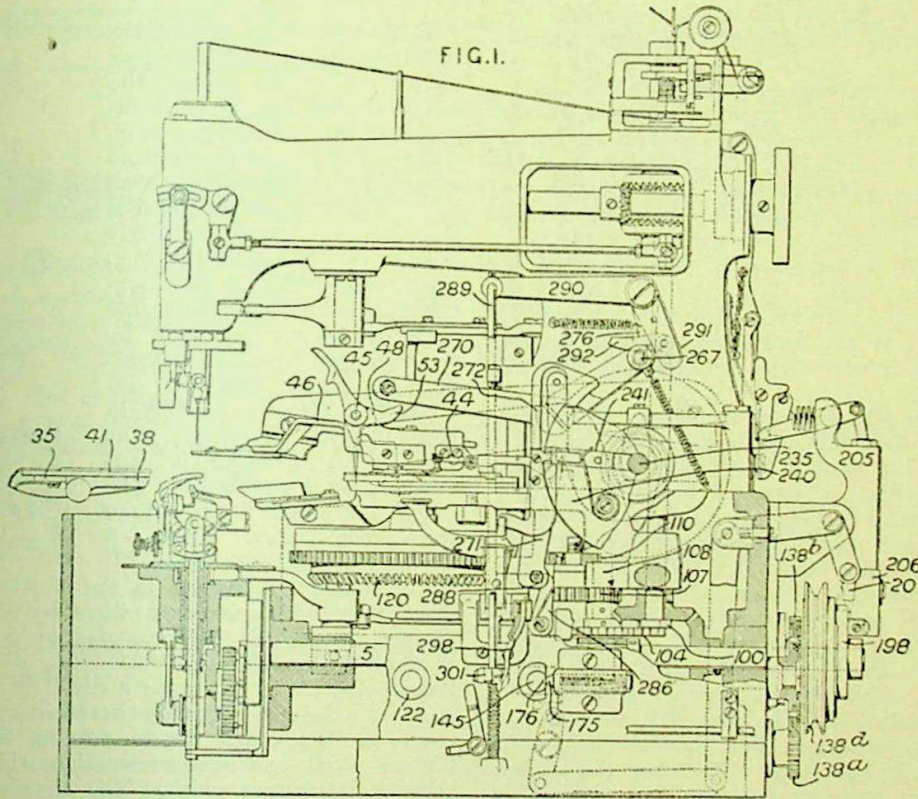


wheel 243. Rotation of this wheel gives one complete oscillation to a plural-armed lever pivoted at 272, Fig. 1, and the pin 267 is then

ejected from the cam-groove. The plural-armed lever first rocks counter-clockwise; thereupon an arm 270 rocks a clamp-closing lever 53, and the pin 267 trips the lever 292 and releases the lever 276 in readiness for it to engage the pin 267 when the latter is ejected from the cam-groove. The opening of the clamps is occasioned by a cam 326 on a cutter shaft 235. This cam rocks a bell-crank lever 328, Fig. 2 and pushes forwards a rod 334, which rocks a lever 54 on the clamp-closing shaft 45. The invariable longitudinal motion of the clamp is transmitted to the slide 38 by a lever 80 and a link 82, Fig. 7, from a cam-groove 77 in the main feed-wheel 76. Lateral motion is given to the plate 35 by one end of a lever 89, Fig. 2, working in a longitudinal slot in the plate. The lever 89 is connected by a vertically movable pin 88 either directly to a cam-

groove 230 in the auxiliary feed-wheel or control 217, described in Specification 183,873, or to a bell crank lever 86, actuated by a cam groove 78 in the main feed-wheel.

Actuation of feed-cam. During the rocking of the plural armed lever, the stud 288, Fig. 13, on the arm 271 first rides over the spring pressed arm 286 and, on its return, forces it downwards, thus rocking a lever 285, 283 and a plate 152, pivoted in a block 146, against the spring 153. The block 146 is part of an axially movable shaft 145, which is yieldingly held by a spring pressed knob 175, Fig. 1, engaging in one of two recesses 176 at the end of the shaft. A forked lever 143, Fig. 6, fixed to the shaft, embraces a groove in the hub of a cone 134 slidingly mounted on the rapid-feed shaft 122, and a rearward extension 168 of the lever 143 coacts with a link 164,



which is continuously reciprocated from an eccentric on the continuously rotating shaft 138. The rocking of the plate 152 allows the lever 147, Fig. 13, pivoted to the side of the block 146, to be pressed down by a spring 151 and to engage a pin 157 by which the link 164 is connected to its operating-lever 158. The pin 157 engages an abrupt shoulder 149, and moves the shaft 145 and the cone 134 axially. The movement closes a clutch C and connects the rapid-feed shaft 122 to a continuously rotating shaft 138 through a worm 137 and worm-wheel 135 integral with the clutch member 126. The return motion of the pin 157 forces the lever 147 up and the plate 152 springs back underneath it. The rapid-feed shaft 122 actuates the main feed-wheel 76 and the auxiliary element 217 and the work is moved from cutting to stitching position. When stitching position is reached, a shoulder 226, Fig. 2, on the auxiliary

control 217 forces a lever 212 rearwardly and throws in the clutch of the stitching shaft. At the same time a projection 229 on the control 217, rocks a lever 172, Fig. 2, and a latch lever 169, to permit the link 164 to rise and engage the arm 168, Fig. 6, of the shaft 145. The latter is then moved with the sliding cone 134 to open the clutch C and disconnect the rapid feed; on the return of the link 164 the arm 168 forces the link down and the lever 169 snaps over it again. When the stitching is completed, the lever 212, Fig. 2, moves forwards over the shoulder 227 on the control 217, and rocks a stop lever 205. Prior to the disengagement of the stitching clutch, a sliding block 206, Figs. 2 and 13, in the lever 205 is raised by a cam 194, and, through mechanism 303, 304, 307, 308, 309, rocks the plate 152, and allows the lever 147 to drop and so be actuated to connect the shafts 138, 122. The clamp is

thereupon returned quickly to cutting position. The point 229 on the wheel 217 then trips the levers 172, 169 to allow the link 164 to throw out the clutch C and stop the rapid feed.

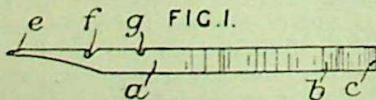
Starting and stopping gear.—On the main shaft 5 is rotatably mounted a continuously running pulley 138^a, which drives the stitching shaft through the usual clutch and also drives the shaft 138, through gearing 138^a, 138^b, 138^c. The stop lever 20 is pivoted in the frame, and the sliding block 206 has a tooth 207 to engage in a notch 195 in the clutch ring. When the control 217 rocks the levers 212, 210 rearwardly, it disengages the tooth from the notch and allows the clutch to rotate the main shaft 5. At the completion of the stitching the stop lever is rocked back, the block 206 is raised by the cam-surface 198 and the pressure of the block opens the clutch and, finally, the tooth drops into the notch and stops the stitch-forming mechanism positively.

Buttonholes, cutting.—As described in Specification 10038/14, the upper and lower cutter levers 247, 248, Fig. 2, are mounted on a fulcrum pin 249. They are moved bodily between cutting and retracted positions and are actuated for cutting by cams on the single revolution cutter-actuating shaft 235. The means for controlling the shaft 235 is the same as that described in Specification 183,873.

Stitch forming devices. The needle actuating mechanism and the loop-taker mechanism are described in Specifications 15048/15 and 9460/12 respectively.

The clutch C, Fig. 6, comprises a flanged driving-disc 126, Fig. 11, which surrounds a driven disc 123 fixed to the rapid-feed shaft 122. The driving-disc is attached to a worm-wheel 135, which is revolvably mounted on the rapid-feed shaft, and meshes with a worm on the continuously rotating shaft 138. The driven disc 123 has peripheral notches 124 with eccentric bottom walls, and spring-pressed clutch rolls 128 in them engage the flange 127. Levers 130, pivoted upon the driven disc, have lateral tail-pieces 131 which project through slots 132 in a retainer plate 133. The cone 134, when forced towards the clutch, moves the tail-pieces 131 outwards and the levers 130 force the clutch rolls, against their springs 129, out of driving contact with the flange 127.

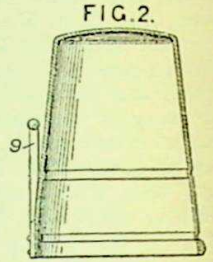
184,411. Goddard, J. T. Nov. 30, 1921.



Needle-threaders.—A needle-threader *a*, Fig. 1, corrugated at *b*, and having a finger-grip *c*, is provided with a fine hook *e*, a larger hook *f*, and a depression *g* for retaining the needle during threading. The hooks may be at opposite ends and the finger-grip in the middle of the threader. The part which is gripped is modified in various ways, such as by bending or curling.

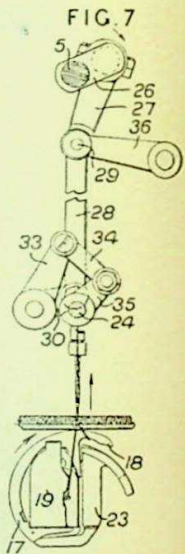
184,969. Parsons, H. J. July 12, 1921.

Thimbles.—A ball-ended cutter-blade 9 of tapering triangular cross-section is fastened to a thimble or ring with its cutting edge towards the support, the free end of the blade being spaced away from the support.



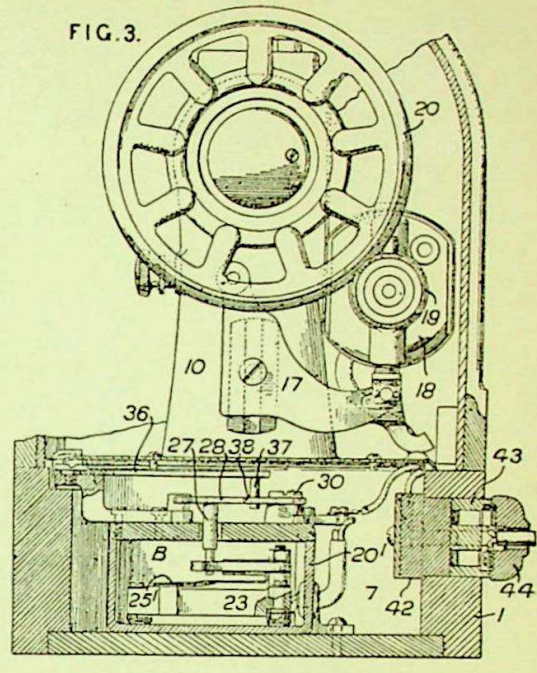
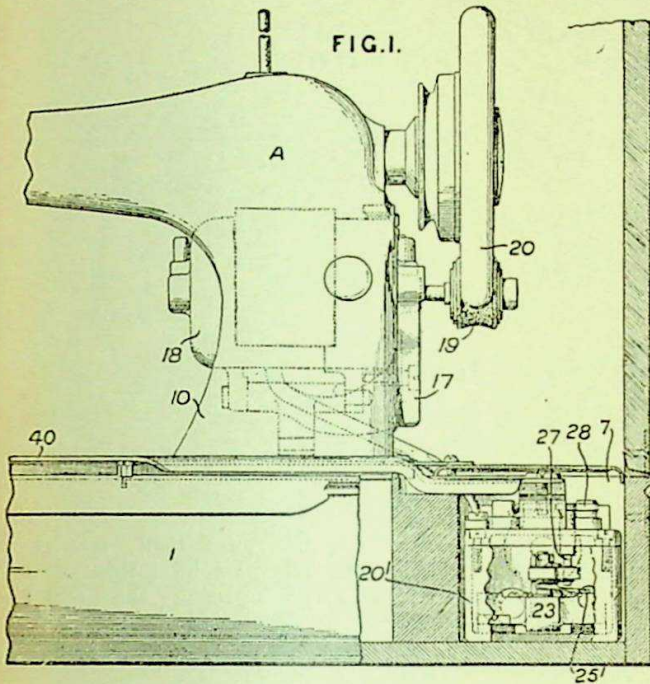
185,005. Fairweather, W., (Singer Manufacturing Co.). Aug. 12, 1921.

Lock stitching.—In order to allow the needle to rise above the work before the needle thread loop is substantially distended by the loop-taker while at the same time employing a loop-taking beak of restricted length and therefore a correspondingly smaller oscillation of the loop taker, the motion of the loop-taker is retarded at the same time of taking the loop by the employment of an actuating-mechanism therefor including a pitman formed in two unequal sections, the pivot point of which is constrained by a radius-rod. The loop-taker shaft 24 is driven from the main shaft 5 through a crank 26, links 27, 28 of which the upper is the shorter and the pivot 29 of which is constrained by a radius-rod 36, and cranks 30, 33 connected by a link 34 to a crank 35 on the shaft 24. The effect of the linkage 27, 28 is to cause a dwell in the movement of the link 28, and therefore of the loop-taker, as the crank 26 is passing through its highest point and an acceleration while passing through its lowest point. The shuttle having a beak 18, 17 supports a bobbin-case 19 and is driven by a shuttle-driver 23 mounted on the shaft 24.



185,024. Fairweather, W., (Singer Manufacturing Co.). Sept. 2, 1921.

Driving.—The speed controller B of a portable electrically-driven sewing-machine A is entirely housed within the base 1 and is operated by a lever 40 adjacent to the line of feed, which can be actuated easily by the work-guiding hand of the operator. A pin 37, depending from an arm 36 of a bell-crank lever 36, 40 actuates a lever 28, pivoted at 30 to the controller case 20¹, which is mounted in a small compartment 7 of the of the hollow base of the machine. A pin 27 depending from the lever 28, actuates in turn a



spring contactor 25¹, which swings over contact points on a resistance element 23. The motor 18 is mounted in a bracket 17 fixed to the machine standard 10, and its pulley-wheel 19 drives the machine by frictional contact with the fly-wheel 20. The controller B and the motor 18 are wired up to a connection block 42, which includes a cylindrical portion 43, journaled in the machine casing, and adapted to receive the supply plug 44.

185,052. Slater, C. Nov. 28, 1921.

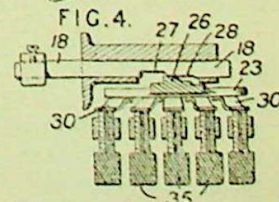
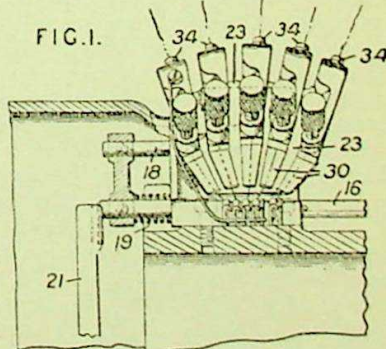
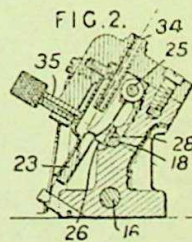
Sewing - needles.—

A needle shank *a* is formed with flats *d*, terminating in a spear-shaped point with cutting edges *e*. Milled grips *j* may be formed on the flats *d*. The eye *g* is situated at the other end *c* which is reduced as shown.



185,062. Willcox & Gibbs Sewing Machine Co., Ltd., (Willcox & Gibbs Sewing Machine Co.). Jan. 13, 1922.

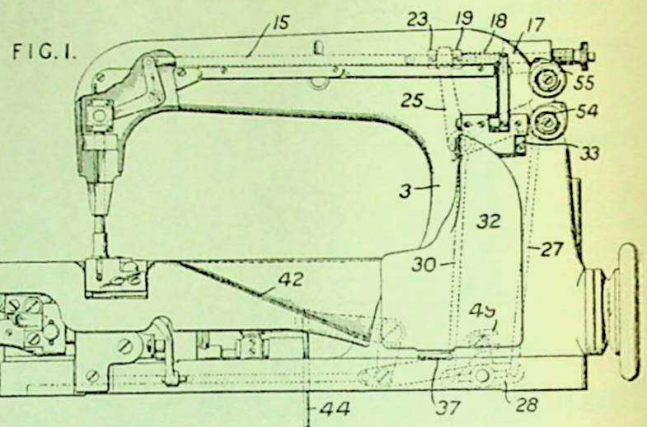
Sewing-machines; thread-tensioning devices.—A tension-device comprises several tension means separately adjustable to vary the tension of each thread but all adapted to be put into or out of operation simultaneously on the movement of another part such as the presser-foot. The threads are passed through tubular guides 34 and between tension springs 30, separately by screws 35, and a plate 23 pivoted at 25 to the frame of the tension-device. A lug 26 on the hinged plate engages a stepped recess 27, 28 in a rod 18 rigidly connected to a shaft 16 movable endwise against a spring 19 by an arm 21 connected to the presser-foot. When the lug 26 rests on the part 28 of the recess, the plate 23 is held in a forward position to nip the threads; when the rod 18 is shifted to allow the lug to drop into the lower part 27 of the recess, the plate moves away from the springs to release the threads. The device is specially applicable to machines of the kind described in Specifications 6036/12 and 6037/12.



to machines of the kind described in Specifica-

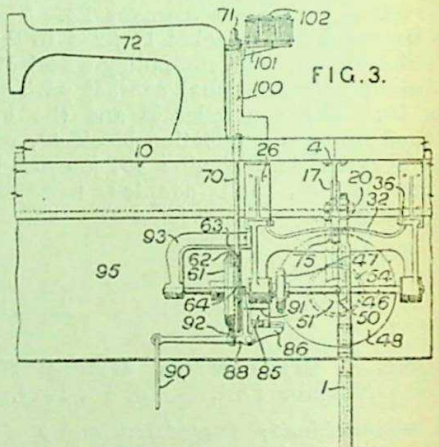
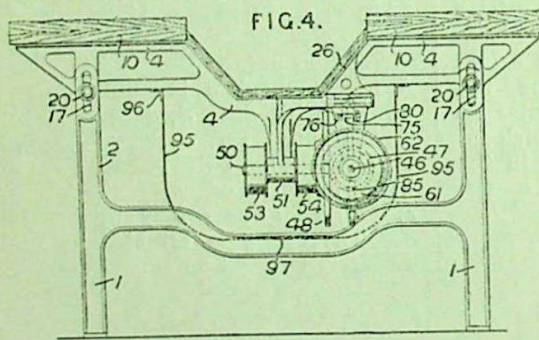
185,070. Fairweather, W., (*Singer Manufacturing Co.*). April 11, 1922.

Sewing-machines; presser-bar lifting devices; frames.—A presser-lifting lever 32 is pivoted at 33 on the standard 3 and extends downwardly in the form of a broad plate convenient for movement by the forearm of the operative. The base of the machine is formed with a sloping shelf 42 upon which the fore-arm can rest. A leaf spring 37 has a tooth which detains the lever 32 when it is pressed inwards to raise the presser. The presser is urged on to the work by a spring 18 on a rod 17 articulated with a link 15 and the lifting-lever 25 which engages between collars 19, 23 on the rod 17 is coupled by links 27, 30 and a lever 28 to the lever 32. The usual treadle connection 44 is coupled to the lever 28 by a link having an open slot 49, so that the treadle can be used to lift the presser and does not hinder operation by the lever 32.

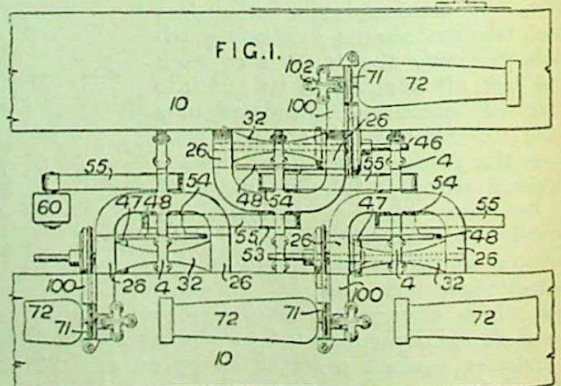


Threads controlling otherwise than in stitch-forming. The lever 25 may be formed with extensions 54, 55 for opening the thread tensions.

185,152. Axilrod, M. April 1, 1921.



Sewing-machines; grouped machines.—In a table for supporting sewing-machines or the like, the machines 72 are staggered and the driving-shafts 46 which are parallel to each other, are driven from a series of shafts 50 which drive each other and are arranged transversely of the table at right-angles to the machine driving-shafts 46. As shown in the Figs. the table-top 10 is supported, so that it may be raised or lowered, by brackets 4 which are secured to legs 1, 2 by bolts 20 passing through slots 17. Each bracket 4 has arms 26 with grooves 36 which accommodate flanges on a hanger 32 supporting a shaft 46. In the centre of the bracket 4 is a bearing 51 for a shaft 50 which carries pulleys 53, 54 and a friction plate 48, the pulleys 53, 54 on adjacent shafts being interconnected by belts 55, the end shaft 50 being geared to a motor 60. Each shaft 46 carries a friction disc 47 which can be brought into frictional engagement with the plate 48 by moving the hanger 32 bodily by means of a bolt 75 carrying a spring washer 80 and screwed into a lug 76 depending from the bracket 4. Means may be provided for moving the disc 47 diametrically across the face of the plate 48. A clutch-half 61 is keyed to the shaft 46 and a



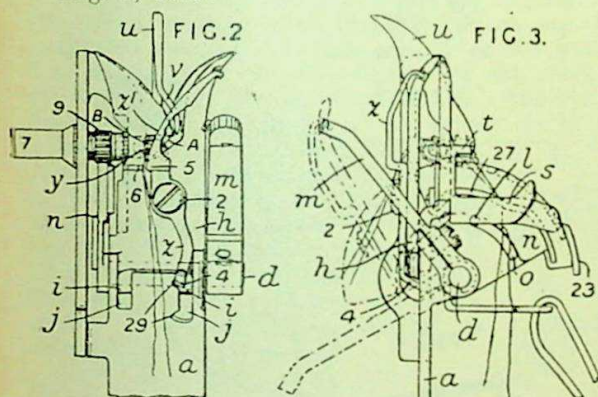
pulley 63 is freely mounted on a ball bearing 64 and is slidable on the shaft 46. A belt 70 passes over the pulley 63 and the machine pulley 71. A bracket 86 is adjustably bolted to a projection 85 of the hanger 32 and on it is pivoted a bell crank lever 88. The driving-mechanism is enclosed by a guard 95, in halves pivoted at 96

and joined at 97, while the portion of the belt 70 extending above the table is enclosed by a guard 100 provided at its upper end with a bracket 101 carrying thread-bearing spools 102. To assist in supporting the shaft 46, a bracket 93 may be bolted to the hanger 32. With this arrangement of driving-gear, each machine can be operated independently of the rest. Downward movement of a link 90 moves the pulley 63 into frictional engagement with the clutch-half 61 and operates the sewing-machine 72. On withdrawal of the pressure on the link 90, a spring 91 simultaneously disengages the pulley 63 from the clutch-half 61, and brings a brake-block 92 on the lever 88 into engagement with the rim 62 of the pulley 63, thus stopping the machine.

185,220. Marzicani, J. W., and Simpson, F. May 31, 1921.

Crochet hooks.—Metal rods or tubes for crochet hooks are covered with impervious, non-conducting, non-inflammable material such as cellulose-acetate by inserting them in tubes of the material and immersing the compound tube in boiling water. The layer of cellulose-acetate on cooling and drying shrinks firmly on to the metal core.

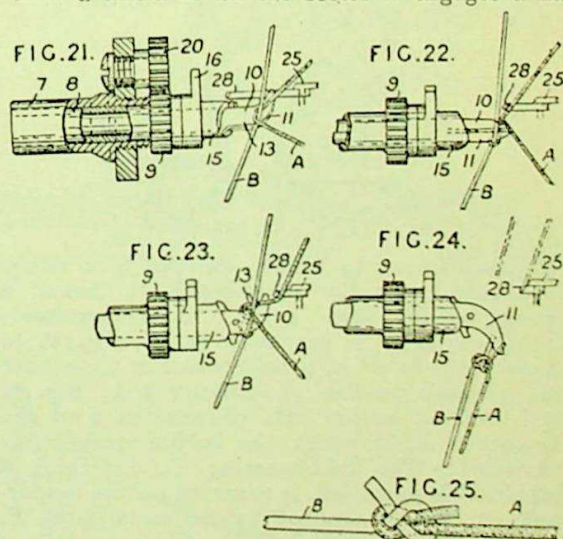
185,308. White, A. E., (*Taft, E. A.*).
Aug. 5, 1921.



Knot-tying devices.—In an implement for tying a weaver's knot, Fig. 25, the threads are first guided into crossing relation, after which a rotary tying-bill co-operates with guiding, clamping, and cutting means to form the knot. Strands A, B, manually held between projections

5, 6, Fig. 2, are passed to the left and right respectively of a separator u , into crocheted members a , h , the member h being pivoted on a shaft d journaled in the member a , which constitutes the frame of the apparatus. The separator u forms part of an element which is

fixed to the frame *a* at *w*, and which also comprises a clip *s*, a table *t*, and a spring detent *v*. The strand A, Fig. 2 is held against the convex portion of the member *h* by the detent *v* and passes down into an opening in the frame *a*, Fig. 4, underneath the table *t*. The strand B is guided by the surface *z* of a lever *z*, pivoted at 2 to the member *h*, Fig. 2, into an opening *y* in the member *h*, and is held from further descent in the frame *a*, Fig. 4, by the table *t*. The strands now lie as shown in Fig. 21 with regard to a split rotary tying-bill 10, 11, which is fixed within a sleeve 8 journaled in a bearing 7 on the frame *a*. Pivoted between the curved ends of the parts 10, 11 is a clamping and cutting member 13, actuated by a cam-sleeve 15, the rotation of which is limited by an arm 16, Fig. 4, which contacts with stops 17, 18 on the frame. To one end of the shaft *d* is fixed a handle *m*, and to the other end a toothed sector *n*, which actuates the tying-bill through gearing 20, 9. A pin *l* on an arm of the member *h* projects into a slot *o* in the sector *n*, and one arm 26 of a bell-crank lever 26, 28, Fig. 4, which is pivoted in a member 25, Figs. 21 - 24, fixed between the members *a*, *h*, projects into a cam-slot 27 in the sector. Throughout the movement of the handle *m* from the position shown in full lines to that shown in dotted lines in Fig. 3, the tying-bill is rotated until *g* shield 23 on the sector *n* engages a flat



on the wheel-hub 20. During this rotation the tying-bill acts on the strands as shown in Figs. 21 - - 24 to form the knot. The lever-arm 28 is moved from left to right, Figs. 21 - - 24, by the action of the cam-slot 27 and carries one limb of the strand A out of the path of the tying-bill jaws and finally coacts with the member 25 to sever it. The jaws of the tying-bill open in the position shown in Fig. 22, and close to cut and clamp the strand B during the continued rotation from the position in Fig. 23. The member *h* begins to turn from the position shown in full lines to that shown in dotted lines when the pin *l* contacts with the right-hand end of the slot *o*, Fig. 3, just after the strand B is cut and clamped. During this movement the

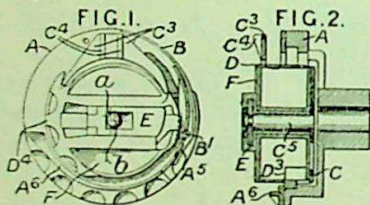
end 4 of the lever z is moved to the right between recesses 29, Fig. 2, in a slot j , so that the strands are gripped between the projections 5, 6 and are pulled forward, drawing the looped threads off the tying-bill on to the clamped end of the strand B and tightening the knot.

185,336. Clarke, H. Sept. 28, 1921.

Hand sewing-tools.—Thread 5 is twisted after being placed in lateral grooves 3 near the piercing point 2 of the tool 1, and is laid in longitudinal grooves 4. In operation, the threaded needle is forced through the material, the thread is then detached, and is re-attached when the needle has been thrust through for the next stitch: the needle is then withdrawn, and the cycle repeated. Only one lateral groove may be formed in the tool and the longitudinal grooves may be dispensed with.



185,337. Alexander, A. E., (Osann Co., F.). Sept. 28, 1921.



Lock-stitching by hooks.—Relates to a rotary loop-taker, specially constructed to house a larger bobbin than usual. A non-rotatable bobbin-casing D is cut away at D³, Fig. 2, to allow the post C⁵ of a bobbin-carrier C to have the greatest possible eccentricity a b , Fig. 1, with respect to the axis of rotation a of the loop-taker A, in which the bobbin-carrier C is journaled. The bobbin-casing D, in which a bobbin F is journaled, is mounted on the carrier-post C⁴, and is secured by the usual latch F. The bobbin-carrier C is held stationary by the usual finger engaging shoulders C¹ on a projection C², the ends of which engage shoulders on the bobbin-casing, which is thus also held from rotation. The loop-taker A is provided with a thread-engaging notch A⁵, a thread-deflecting element B, provided with a throat-forming projection B¹, and also a loop-spreading shoulder A⁶, which acts in conjunction with a shoulder on the carrier C, and a loop-opening beak D⁴ on the bobbin-casing.

185,401. Venditti, G. Aug. 26, 1921, [Convention date].

Hand-sewing tools; marking work for sewing.—A free-loop stitching hand-sewing tool is moved

by hand to follow a predetermined outline for the purpose of tacking together two pieces of material, so that by slightly separating the pieces, the threads between them may be cut, thus leaving identical patterns marked on each piece. A handle b integral with the frame a has pivoted thereto at b^1 two levers b^2 , b^4 . The sector c meshes with a toothed wheel c^2 , which is loose upon a fly-wheel shaft d and is integral with a ratchet c^3 . A spring-pressed pawl c^5 , pivoted to a plate c^4 which is fixed to the shaft d , engages the ratchet c^3 . A pawl e^1 , Fig. 1, pivoted to a disc e which is keyed to the shaft d engages a notch f^1 in a disc f . The disc f is loosely mounted on the shaft and actuates by means of a pin-and-slot connection the needle-arm g , which is pivoted on a pin g^2 . A spring-pressed lever g^1 , Fig. 2, mounted on the pin g^2 tends to keep the needle out of the material. The handles b , b^2 are operated to transmit a continuous rotary motion to the fly-wheel shaft

FIG. 1.

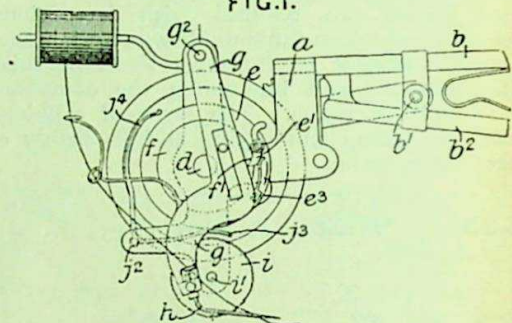


FIG. 2.

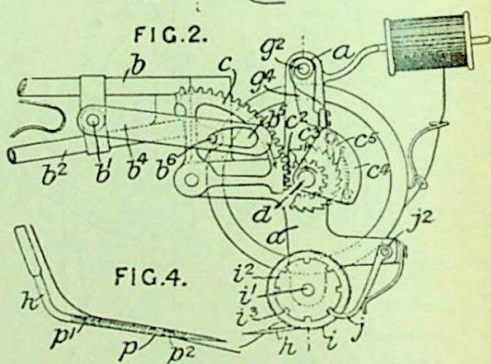


FIG. 4.

d , thus reciprocating the needle h . The machine rests on milled wheels i on a shaft i^1 to which is also fixed a notched disc i^2 . A pawl j , which co-operates with the disc i^2 , is fixed to a pin j^2 , integral with levers j^3 , j^4 , Fig. 1. The pawl j engages a notch i^3 on the disc i^2 during stitch forming to hold the tool stationary. As the needle leaves the material, a cam projection e^3 on the disc e forces downward the lever j^3 so as to disengage the pawl j from the disc i^2 , so that the machine can move forwards until the pawl j engages the next notch i^3 . When the lever j^3 is forced downwards, the lever j^4 is brought into the path of the tail of the pawl e^1 which is raised thereby from engagement with the disc f . Reciprocation of the needle is therefore stopped until the pawl j engages in the next notch i^3 . The needle h , Fig. 4, is grooved at p^1 , p^2 on either side of the eye p so as to reduce the friction between the needle and the thread.

185,627. Fairweather, W., (Singer Manufacturing Co.). Sept. 2, 1921.

Sewing - machines;

driving.—A motor C and a motor-controller D are both mounted on a bracket 17 which can be attached to the standard 7 of a foot-power drop-head sewing-machine so that a hand-lever 40, operating the controller, is situated adjacent to the line of feed. A belt 25, which connects the motor pulley 26 and the machine pulley 16, can be tightened by means of an idler 24, mounted on a slotted arm 23 attached to the bracket 17. A lever 37, pivoted to the controlled case 30, is actuated by a pin 44, Fig. 3, depending from an arm 41 of the lever 40, 41; and a pin 38, depending from the lever 37, actuates in turn a spring contactor 34 which swings over contact points on a resistance element 31. The arm 40 of the lever can be operated by the fingers of the work-guiding hand of the operator at will. The controller D and the motor C are wired up to a connection block 52 of fibre &c., which is adapted to receive a supply plug 55. A spring 47, adapted to slide between spaced guides 49 on the underside of the controlled casing 30, sustains part of the weight of the machine, when it is being swung into and out of the cavity 5. Specification 185,024 is referred to.

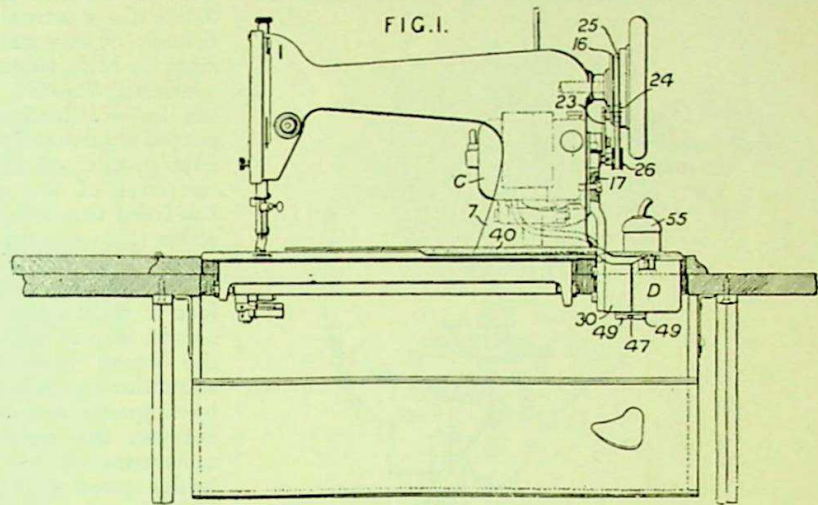
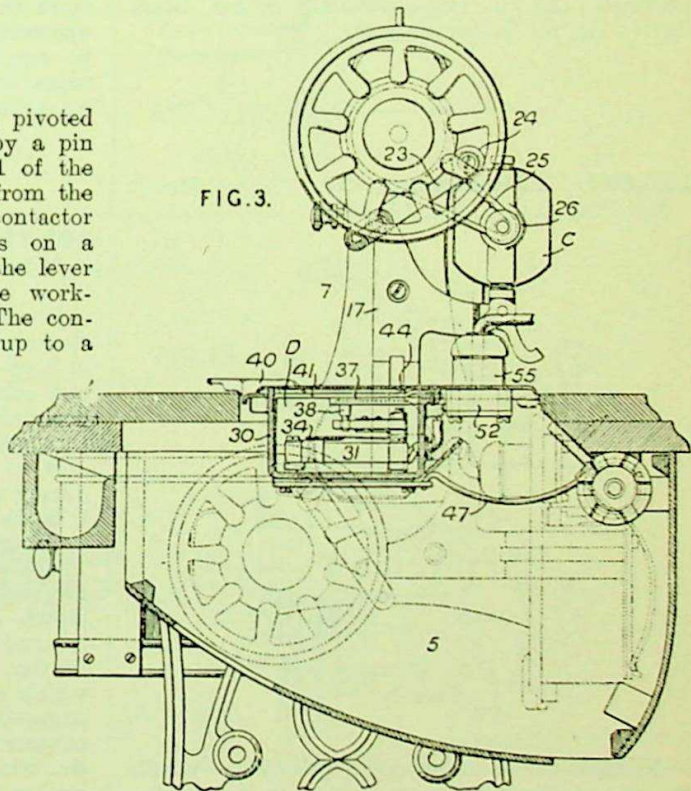


FIG. 3.

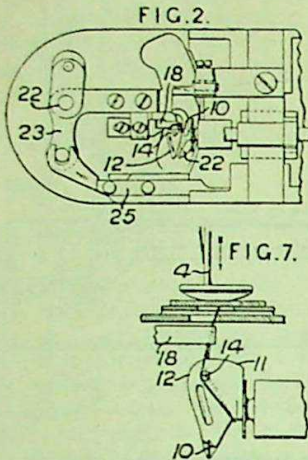


185,690. Fairweather, W., (Singer Manufacturing Co.). Dec. 22, 1921.

Loop-stitching; thread-cutters.—In a machine with a laterally vibrating work-holder means are provided for positioning the needle-thread loop uniformly in relation to a rotary looper 12 regardless of the position of the previous stitch, and for taking up temporarily the thread-loop slack after the loop has passed round the outer

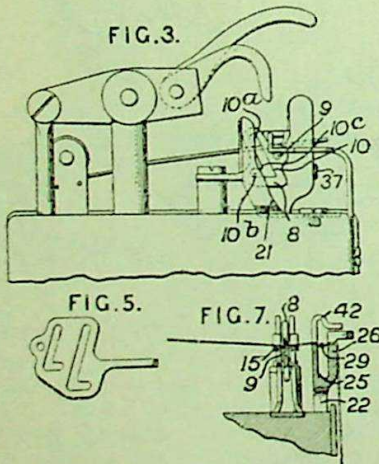
end of the looper. The needle-thread loop is positioned by means of a fixed finger 18 and the rotary looper 12 is given sideways movements for the purpose of placing the loop upon the finger. The slack of the thread loop is taken up temporarily by a projection 14 on the looper which engages a limb of the loop. This prevents the loop from whipping round the end of the spur 18. A thread-cutter 22, Fig. 2, mounted on a bell-crank lever 23, is actuated to cut the

thread by the stop mechanism, through the draw-bar 25. An oscillating needle-guard is



provided and a loop-controlling finger bears lightly on the looper surface.

185,697. Fairweather, W., (*Singer Manufacturing Co.*). Jan. 11, 1922.



Multiple-needle machines; governing needle thread.—A thread take-up carried by the needle-bar comprises a plate 8 having an L-shaped thread aperture 10, Fig. 3. The thread is engaged by an horizontal portion 10^b of the aperture until, in the descent of the plate, the thread contacts with a fixed oblique cage 21 and is pushed off the edge 10^c into the upwardly inclined portion 10^a of the aperture. The device is applied to a multiple-needle machine having one looper so as to provide that the several needle-thread loops shall be taken-up in pairs as they are cast-off the looper. Fig. 3 shows the application to a two-needle machine. The thread of one needle passes through the slot 10 and the thread of the other needle passes through an

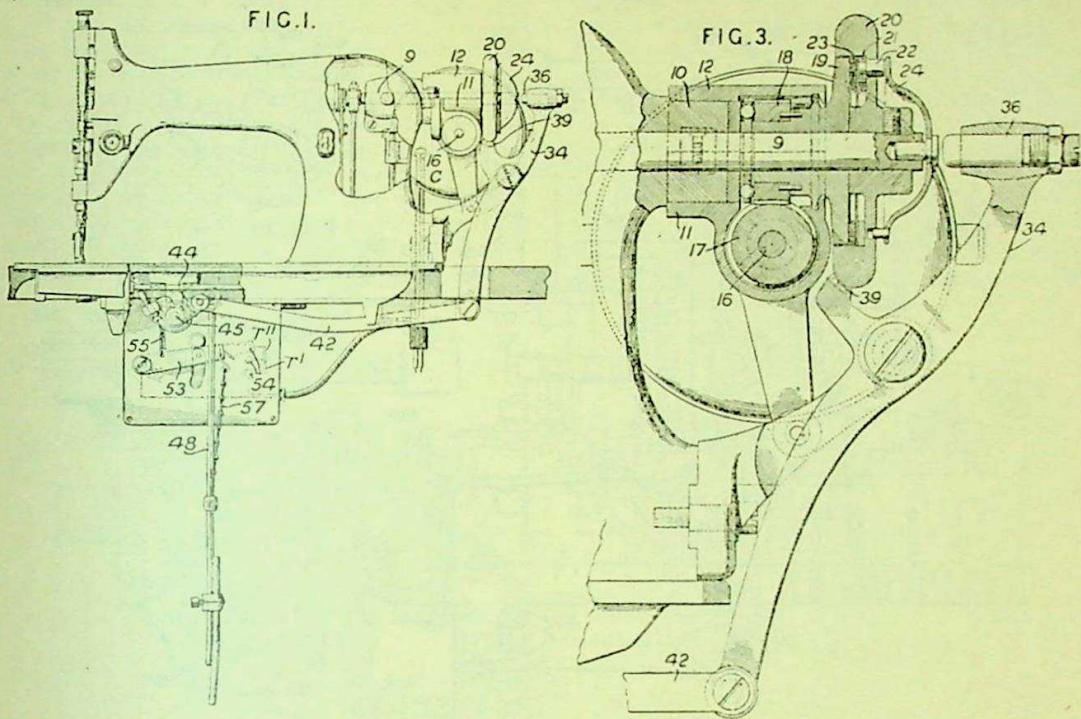
eye 9. Both threads pass over guide-arms 25, 26 Fig. 7, and the thread passing through the eye 9 lies above arms 15. In the first part of the descent of the needle-bar, the take-up gives up slack to each thread: then, when the first of the previously-formed loops is being cast off from the looper, the horizontal portion 10^b of the L-shaped aperture in the take-up plate carries the supply side of the thread to that loop below the level of the arms 25, 26 and the slack of the freed thread-loop is thereby taken up: later, when the second thread-loop is cast-off, the supply side of its thread is carried by the eye 9 between the arms 15 and the slack of the loop is more rapidly taken-up. Shortly after the second loop is cast-off, the inclined edge 21 frees the thread from the edge 10^c. A slack-thread controller operating on both threads is provided by a spring arm 29 which rests on the threads between the arms 25, 26. The upper limit of movement of the arm 29 is determined by a bridge piece 42 and the lower limit by an adjustable stop 37, Fig. 3. For machines having more than two needles the number of L-shaped apertures is increased and they are arranged to act in turn in conjunction with inclined edges such as 21. Fig. 5 shows a take-up plate for a three-needle machine.

185,710. Fairweather, W., (*Singer Manufacturing Co.*). June 17, 1921.

Sewing-machines; driving, starting, and stopping gear.—In order to facilitate the use of high-speed electric motors for driving sewing and other small machines, the mechanism for declutching the motor from the machine is arranged to cut resistances into the motor circuit so that the motor runs at reduced speed during the idle period of the machine. A motor C is secured by housings 11, 12 on an outwardly projecting bearing-boss 10 of the main shaft 9. The shaft 16 of the motor carries a worm 17 meshing with a gear-wheel 18 secured on a clutch disc 19 turning freely on the shaft 9. A hand-wheel 20 fast on the shaft 9 is clutched to the disc 19 by a ring 21 carrying pins 22 which slide in holes in the wheel 20 and are engaged by a pusher 24 to force the ring into contact with a loose ring 23 of compressed cork &c. which frictionally engages the disc 19. The pusher is actuated by the engagement therewith of an adjustable stud 36 of antifriction material such as oil-soaked hard wood mounted in a lever 44 on a shaft 45 rotatable against the action of a spring by a treadle rod 48. Connected to the treadle rod by a chain 57 is a rheostat arm 52 held by a spring 55, when the machine is at rest, on the uppermost of three contacts 54 so as to include in the motor circuit resistances r^{11} , r^1 . When the treadle rod is depressed to start the machine the resistances are successively cut out, and immediately after the arm 53 meets the lowest contact the clutch is engaged.

(For Figs. see next page.)

185,710.

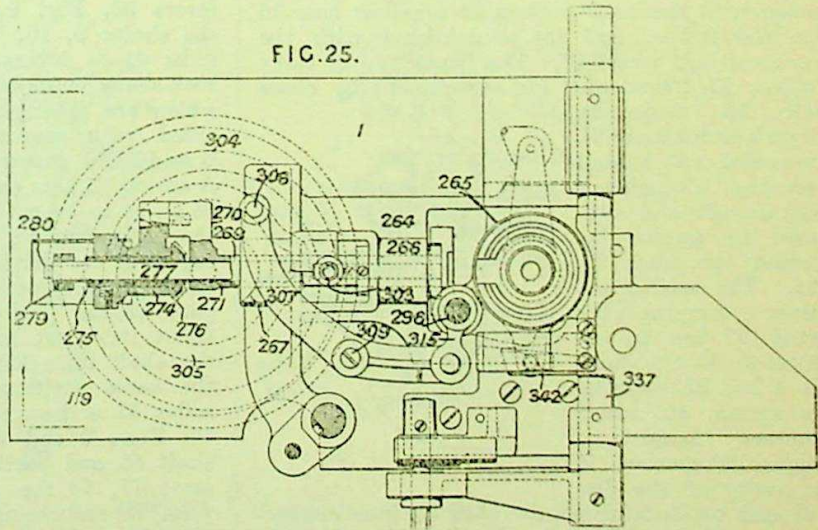


185,711. Fairweather, W., (Singer Manufacturing Co.). April 21, 1921.

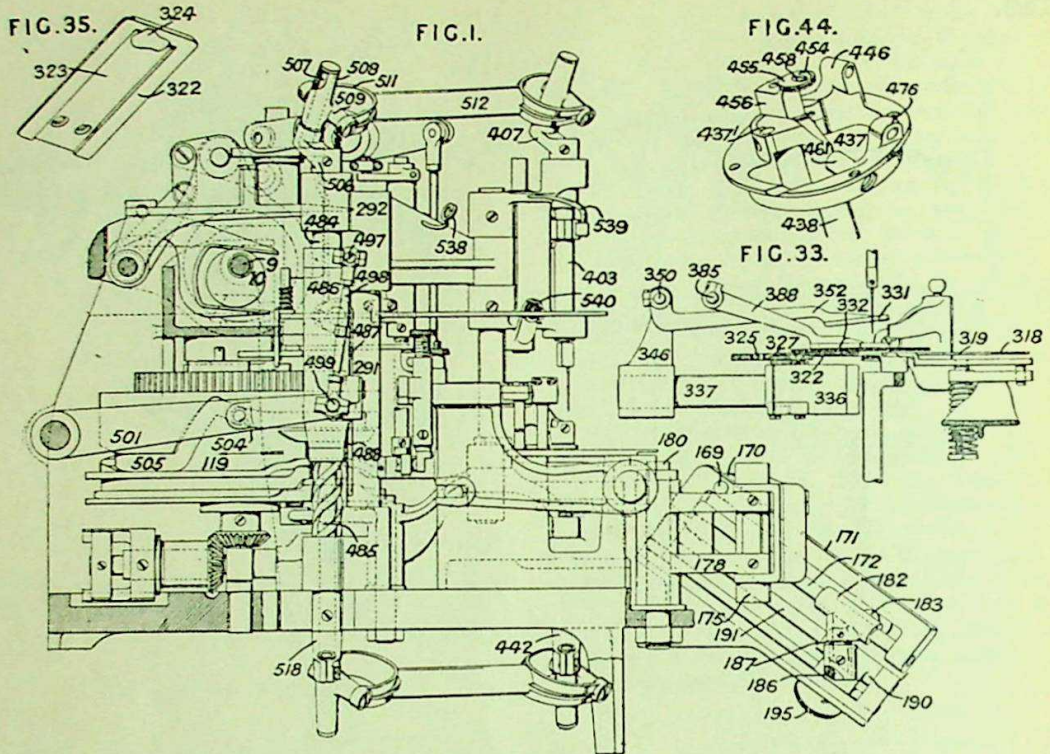
Button-hole sewing-machines; starting and stopping gear.—A button-hole sewing-machine is provided with means for advancing the work between sewing periods so as to space the button-holes apart. The means employed consists of a slot-cutting arm which is brought into nipping contact with the work when in retracted position, advanced to bring the work into sewing position, depressed further to cut the slot, and then lifted and withdrawn. This slot-cutting and work-spacing arm is mounted

so as to be movable in a variable curved path by adjusting the position of the fulcrum on which it turns, and is operated by a continuously moving actuator independent of the stitch-forming mechanism. The stitch-forming mechanism is moved laterally and longitudinally relatively to the button-hole and rotated in sewing around the ends of the button-hole, being reversely turned to initial position after the button-hole has been completed. Two clamping-feet are provided which are lifted from and engaged with the work in succession, one of said

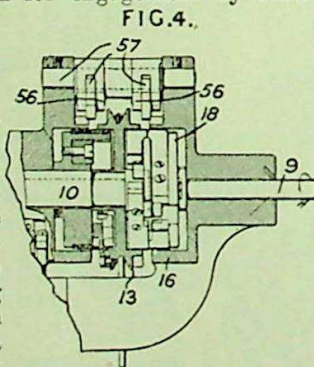
FIG. 25.



feet being laterally movable out of the way of the cutting and spacing device when the latter is operating to space and cut the work. Means are provided whereby the operator may arrest the motion of the stitching mechanism while the feed continues. The stitch-forming mechanism and the feeding and button-hole cutting-mechanisms are driven respectively by concentric shafts 9, 10, Fig. 4, adapted to be clutched to a belt wheel 13 mounted loosely on the end of the shaft 10 by clutch and brake devices of similar construction. The device in connection



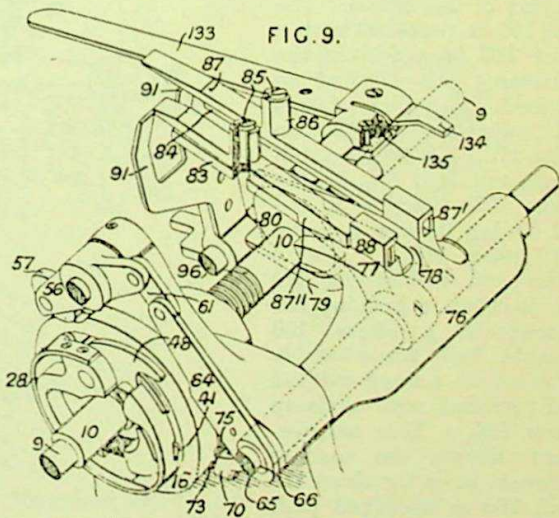
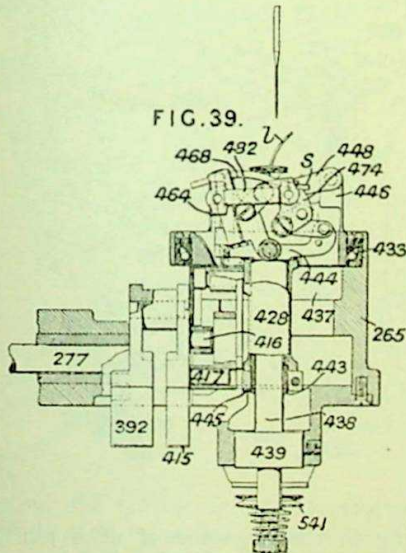
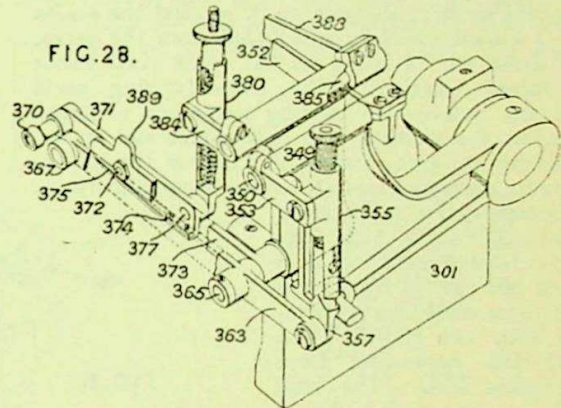
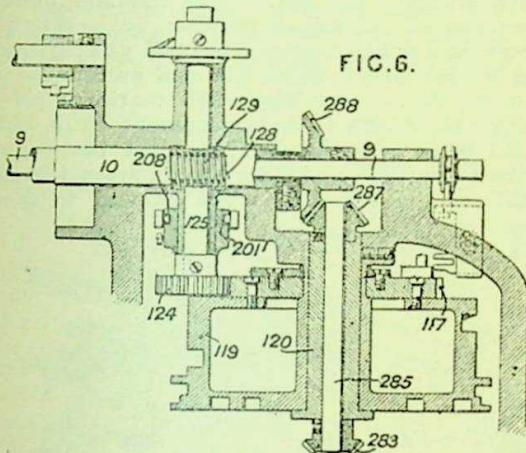
with the shaft 9 is illustrated in Figs. 9, 11, 12, 13, and 14 and comprises a disc 18 fixed to the shaft and having seats 20, 21 for a brake-band 24 and clutch-band 28, the brake-band co-operating with the inner surface of a hollow boss 16 on the frame, and the clutch-band with the recessed belt wheel 13. The bands 24, 28 carry rollers 25, 29 adapted for engagement by studs 34, 35 projecting from a clutch lever 31 mounted on a stud passing through an opening 32 and situated in a slot between the seats 20, 21. The arm of the lever carrying the stud 35 has an extension 36 on which is a lug 37 carrying a spring 40 which presses against a block 39 secured in a cavity of the disc 18 and tends to force the stud 35 into engagement with the clutch-band roller 29 and withdraw the stud 34 from the brake-roller 25. The extension 36 has a projection 41 which passes through clearances in the clutch-band seat and the clutch-band and bears against the inner surface of the driving pulley, restraining the movement of the clutch-lever under the impulse of the spring 40 until the projection registers with a clearance notch through which it emerges to permit a clutching action which is converted into a positive coupling by the engagement of the projection 41 with a lug 44 on the rim of the wheel. The clutch-lever also carries a pro-



jection 48 extending through slots in the brake and clutch bands and between the boss 16 and the driving wheel into position for engagement by a roller 57 carried by one of a pair of rock-levers 56, Fig. 9, respectively functioning for the shafts 9, 10. The levers are connected by links 61 to levers 64 fixed on inner and outer rock-shafts 65, 66, the extreme positions of which are determined by pairs of arms 70 provided with stop-screws 73 which engage the boss 16 and determine the throw of the link 64. A spring 75 acts on an arm 70 to move the levers 64 so as to keep the roller 57 out of the path of the projection 48, the clutch-lever then revolving with its driving-wheel, but when the rock shaft is operated to move the roller into the path of the projection the lever 31 is moved about its pivot and the wheel declutched and the shaft 9 or 10 positively stopped, always in the same position, by the engagement of the roller 57 and projection 48. A rocking sleeve 76, Figs. 7 and 9, loosely journaled partly on shaft 65 and partly on shaft 66 carries tappet-arms 77, 78 the arm 78 being formed with a yoke 79 embracing a cam 80 on the shaft 10. The sleeve 76 is cut away on one side to expose the shaft 65 and the end of the shaft 66 secured on which are arms 83, 84 each carrying a stud screw 85 engaging a boss 86 on a laterally-movable lever 87. Reduced ends 87¹ of the levers 87 engage housings 88 on the tappet arms in which are springs tending to keep the levers 87 in alignment with their supporting arms and with depending flanges 87¹¹ thereon in contact with the supporting arms. When the levers 87 are shifted laterally as shown at the left in Fig. 9, they are thrown into the path of the continuously rising and falling tappet arms 77, 78 and the

shafts 65, 66 are thus moved to move the clutch and brake mechanism into stopping position, the arms 83 and 84 then being elevated. In this position, the machine being at rest, the ends of the lever 87 rest on the members of a yoke 91 mounted on an endwise movable shaft 96 which may be rocked by the operation of a treadle rod 101 to retract the yoke 91 from the shorter lever 87 and permit its carrying arm to descend and the shaft 66 to turn to effect the coupling of the shaft 10, subsequent endwise movement of the shaft 96 releasing the longer lever 87 and similarly effecting coupling of the shaft 9. A

pin 102 depending from the yoke member 91 enters a slot 103 in a cam-lever 104, Fig. 8, having a lateral extension 105 formed with a boss 106 in which turns a stud 107 mounted in a block 108 turning on a horizontal pin 109 so that the lever 104 may move in two planes. A cam-surface 104¹ on the lever 104 and a cam-plate 112 secured thereon are adapted for engagement by a stud 114 projecting from the face of a gear-wheel 117 on the upper face of the feed cam-cylinder 119, Fig. 6, mounted on a tubular bushing 120. A driving pinion 124 meshing with the gear-wheel 117 is mounted on the cutter-actuat-



ing shaft 125 which is rotated by the shaft 10 through worm gearing 129, 128. A starting lever 133 having an extension 134 is secured in a block fast to the shaft 96 and is controlled by a spring 135, Fig. 9. The extension 134 engages a flange 137¹ formed on a plate 137 slidably mounted on the frame by means of a stud engaging a slot 138. The plate 137 has a forked extension 140 engaging the end of the cam-plate 104 and is normally pressed downwards by a spring 141 surrounding a pin 142 entering a socket in the frame. A lever 145 having a yoke 146 extending therefrom is mounted loosely on the shaft 96 or spring 147 which tends to move

it endwise towards the right in Fig. 7, and thus retain the cam-surfaces of the lever 104 within range of the stud 114. A finger 148 projecting from the yoke 91 is normally pressed upward by the action of the spring 141 to engage beneath an angle-piece 149 screwed to the frame and providing a seat for a pin 151 pressed downwards by a spring 152. When the shaft 96 is moved endwise by the action of the pin 114 on the cam-surfaces 104¹, 112, the finger 148 moves from beneath the pin 151 which descends into latching engagement from which it may be released by rocking the lever 133 or 99. The rocking of the shaft 96 also effects, through the lifting of

the plate 137, the lifting of the cam-plate 112 from contact with the pin 114, whereupon the shaft 96 can move endwise under the action of the spring 147 through one step of its operative movement. In this position, the pin 114 engages the cam 104 but is removed therefrom by the rotation of the cam 119 which allows the shaft 96 to make a further endwise movement and carries the fork 91 from beneath the longer lever 87 and allows the arm 84 to descend and effect the coupling of the shaft 9 with the stitch-forming mechanism. A reverse movement of the arm 133 for stopping the mechanism has the effect of successively bringing the arms 84, 83 under the action of the cam 80 by reason of the sidewise shift of the latches 87 so that the shafts 9, 10 are successively uncoupled from the drive, the arms 83, 84 being at the same time re-set in raised position. The stitch-forming parts and the button-hole cutting parts are arranged to allow the cutting of a button-hole slot in the stitching position, for which purpose the stitch-forming parts are mounted on a travelling frame.

Button - holes, cutting. The cutter-knife 162, Fig. 21, which coacts with a block 161 carried by a plate 158, is mounted on a member 153, 154 guided by a stud 156 depending from the plate 158. The stud 156 is surrounded by a control spring 165 and rests on part of the frame. The arm 153 is provided with a pivot 169 journaled in the transverse yoke 170 of an inclined swinging frame 171 supported by double links 175, 178 from a fulcrum stud 180, Fig. 1. The frame 171 carries a rod 172 having thereon a sleeve 182 fitted with a clamp screw 183 and a pin 186 which enters a bushing 187 formed on a sleeve 190 slidably but non-rotatably mounted on a fixed rod 191 and provided with a clamp screw 195. This arrangement allows the cutting elements to swing about the pivot 180 in a curved path of variable radius but with the cutting position fixed. The arm 154 is connected by a link 196 with a spring-controlled lever 200 actuated by a cam 204 on the master-cam 119 and mounted on a hub 201 slidably journaled on a boss 126. The cam 204 has a projection 204¹ with two active portions 204^b and 204^c and two concentric portions 204^d and 204^e coacting with a stud 203 on the lever, by which arrangement the cutting-elements are first advanced partially, then fully to cutting position, and then retracted as the stud 203 passes to the portion 204^a of the cam. The hub 201 is formed with a groove 201¹ engaged by pins 208 on the yoke 146 mounted loosely on the shaft 96, Figs. 6 and 7. By connections with the lever 133 including members

239, 240, 241, 243, 245, 246, 249, Fig. 7, the yoke 146 may be actuated by the movement of the lever 133 to lift the hub 201 and remove the stud 203 out of the path of the cam 204, whereby the cutting-elements are spring-retained in the retracted position. When so shifted, the stud 203 bears against a restoring cam 209 which merges at one point with the periphery of the cam 204, at which point the stud 203 drops if permitted, into contact with the cam 204. The cutter lever 154 carries a pin 211 bearing on the underside of a rail 212 carried by a vertical slide bar 213 having sliding engagement through a tongue and groove with a block 218 secured to a reciprocating rod 221. The rod and block are maintained in raised position by a spring 225 and the bar 213 carries a pin 217 passing through a bracket on the block 218 and surrounded by a spring 227. The block 218 carries a pin 229, Fig. 21, adapted for engagement by a cam-rib 230 to depress the block against the action of the spring 225 and also to compress the spring 227 as the bar 213 is not allowed to descend

FIG. 21.

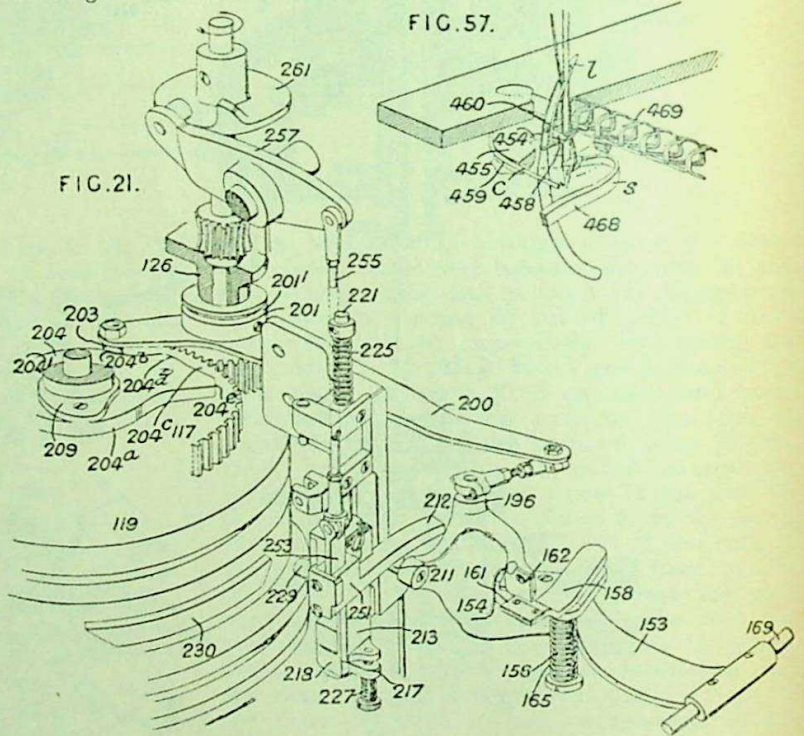


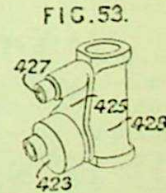
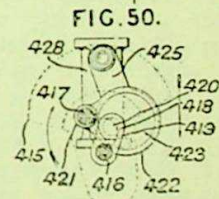
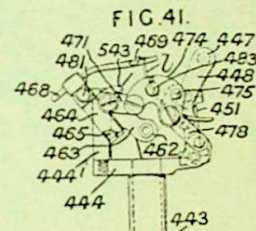
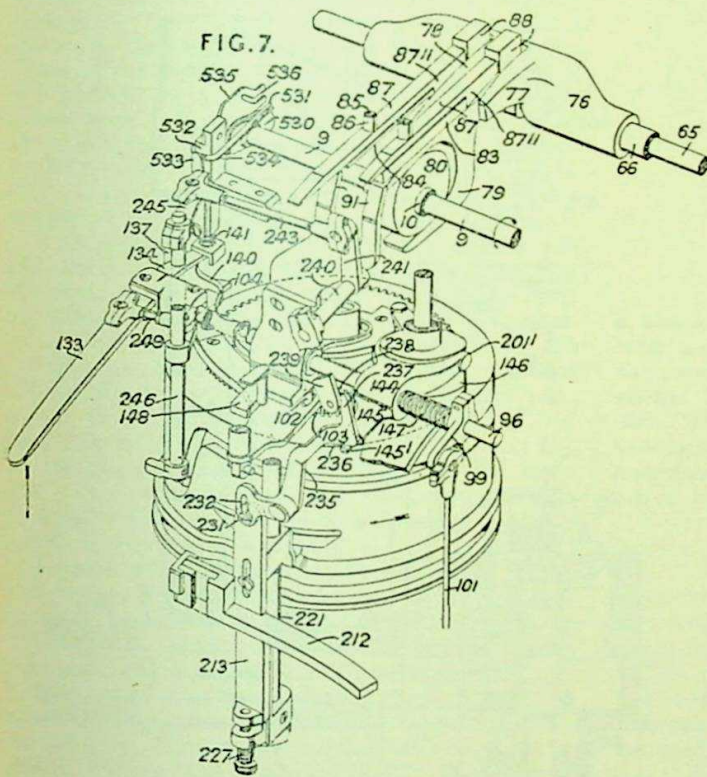
FIG. 57.

owing to the engagement of a pin 231 thereon by the lower end of a slot 232 formed in a lever 235, Fig. 7. The lever 235 has a cam-surface 236 engaging a pin 145¹ projecting from the yoke member 146, and a finger 237 engaged by a pin 238 projecting from an arm 239 connected by the mechanism 240, 249 with the lever 133. On the first endwise movement of the shaft 96 at the beginning of a cycle, the movement of the lever 133 causes the disengagement of the stud 238 from the finger 237 and the removal of restraint on the bar 213 which descends under the action of the spring 227 and brings the knife 162 into nipping engagement with the work so that, in the movement of the cutter lever to cutting position, the work is moved to space the button-holes

apart. When by the operation of the cam 204, the cutter lever and its block 161 are moved to the cutting position (the block then resting on an abutment 456, Fig. 41, of the lower stitch-forming mechanism) the stud 211 is brought into the path of a plunger 253 which is caused to perform vertical oscillations in a socket 251 of the rail 212 by mechanism comprising a rod 255, lever 257, and cam 261 mounted on the shaft 125. The plunger forcibly depresses the cutter lever to cut a button-hole slit.

Stitch-frame-shifting device. The stitch-forming devices are mounted on a base-plate 264 having thereon a cylindrical casing 265 for the looper mechanism and bearings 266, 267. Within the bearing 267, Fig. 25, is the bearing-boss 269 of a bracket 270 formed with a fulcrum

stud 271 journaled in the bed-plate 1. The arm of a sleeve 274 is secured to the bracket and has journaled therein the hub 275 of a pinion 276. A crank-shaft 277 which drives the stitch-forming mechanism is journaled within the boss 269 and is slidably engaged with the pinion by a cross-bar 279 and guide-members 280 projecting from the pinion hub. The pinion 276 is geared to the shaft 9 by gear wheels 283, 287, 288 and a shaft 285, Fig. 6, and rotates at twice the speed of the shaft 9. The base-plate which slides on the face of the bed 1 has fixed thereto a standard 291, Fig. 43, carrying a pivoted bracket-arm 293 carrying a post 296 which is secured to the needle-bar frame 299. The plate 264 carries a roller stud 303 entering the feed-cam groove 304, Figs. 25 and 27, of the cylinder 119. The side-



shift cam-groove 305 of the cylinder is engaged by a stud 306 carried by a bell-crank lever 307, pivoted on a stud 309 fixed in the base-plate 1, and connected by a link 315 to the post 296.

Work-plate; work clamps. The base-plate 264 has lateral flanges 264¹ sliding beneath overhanging lips 300¹ of brackets 301 formed with aligned bearings 316 surmounted by flat seats 317, Fig. 27, on which is secured the work plate 318, Fig. 33, formed with a segmental slot 319 to accommodate the cutting elements. This slot communicates with a rectangular opening in which fits a slide plate 322 having a needle aperture 324. A thin plate 327 is mounted on a pin 325 at one end of the opening and is pressed downwards by a spring to rest in a recess 323, Fig. 35, of the plate 322. The further end of

the plate 327 is cut away to conform with the contour of one side of the needle aperture. The plate 332 is secured to a plate 335 supported by the middle portion 336 of a bar 337 slidable in the bearings 316, Fig. 27. An arm 339 projecting from the bar 337 has therein a groove engaged by a roller-stud 342 supported by a lug projecting from the casing 265, so causing the bar 337 to follow the endwise movements of the stitch-frame. A bracket 346 secured to the bar 337 and engaging a guide for preventing rotation carries a bearing 349 on which is mounted a shaft 350 carrying an arm 352 which supports a clamping-foot 331. The shaft 350 carries an arm 353 connected to the outer member 355 of a telescopic link, the inner member 357 being pivotally connected to a rock-lever 363 journaled

on a pin 365 on the bracket 301 and carrying a roller-stud 367 entering a groove 368 of the cam-wheel 119. A narrower cam-groove 369 in the bottom of the groove 368 is engaged by a roller stud 370 on a lever 371 mounted at 372 on a lever 373 journaled on the pin 365. The lever 371 has on its other arm a lip 374 extending beneath the lever 373 and providing a seat for a spring 375 which keeps the levers in alignment. The arm of the lever 371 is connected by a pin 377 to one member of a telescopic spring link 380, the other member of which is pivotally connected by an arm 384 to the shaft 385 on

which is secured a second arm 388 carrying a clamp-foot 332. The lever 373 has an upward projection 389 adapted for engagement by a finger 390 on the shaft 246 and when this is effected, the pin 372 is unable to rise and the lever 371 moves idly without lifting the foot 332. The foot 331 and plate 322, being mounted on the slide bar 337, are moved away together laterally at the appropriate moment to admit the cutting-lever which, after cutting a button-hole, moves to one side, the work being held in the meantime by the foot 332 and plate 327. On the subsequent return of the foot 331 and plate

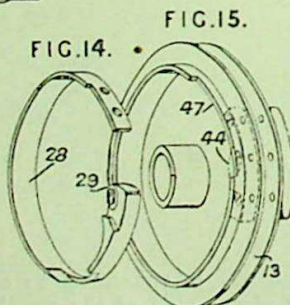
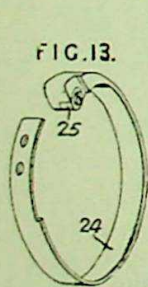
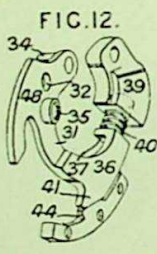
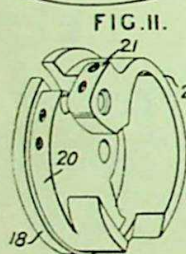
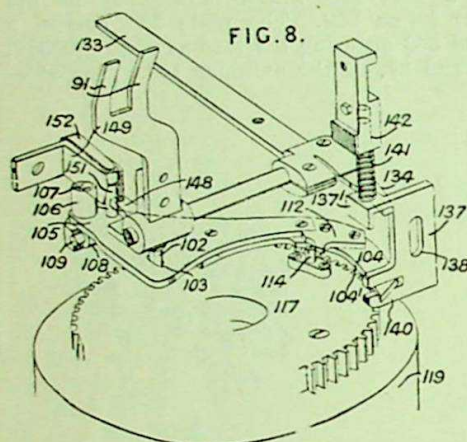
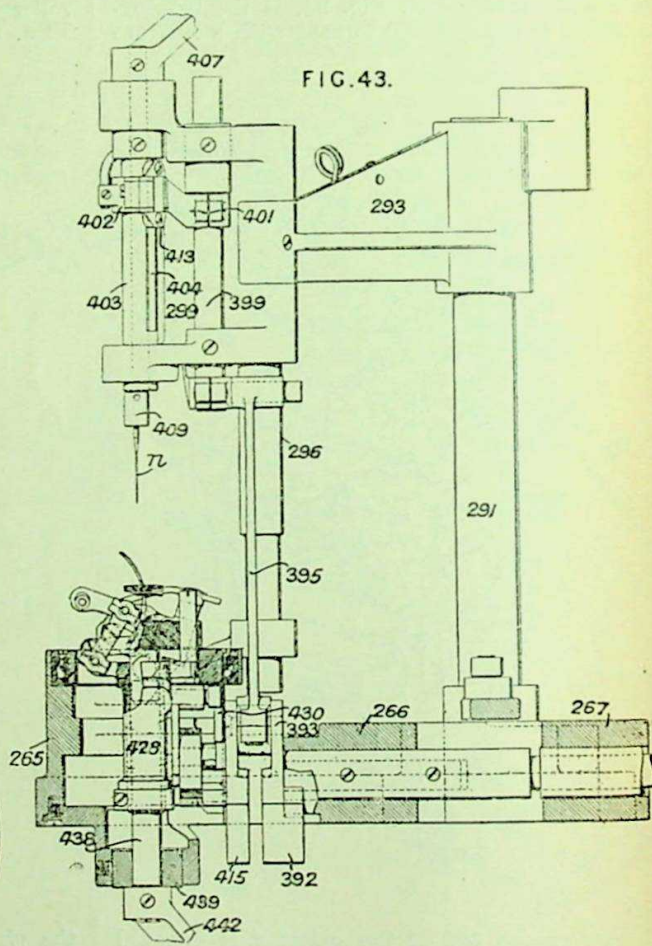


FIG. 15.



322 the work is gripped just before the position of rest is reached, thus slightly stretching the work across the slit.

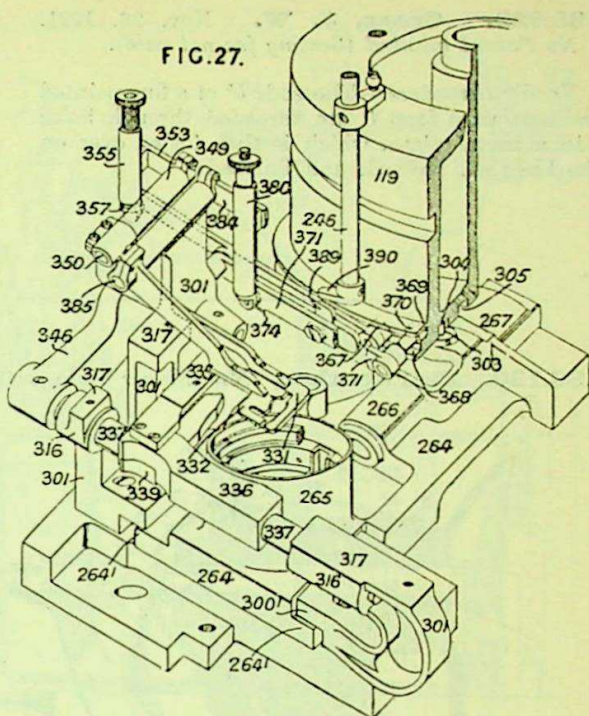
Needles, driving.—On the shaft 277 is a crank 392, Fig. 43, the stud 393 of which is engaged by the end of a pitman 395 connected to a reciprocating bar 399. Secured to the bar 399 is an arm 401 carrying a split boss 402 loosely surrounding a rotatable sleeve 403 having at its upper end a crank 307 mounted within a slot 404 in the sleeve 403 and secured to a needle bar 409 is a spline having lugs 413 embracing the boss 402 so that the reciprocating motion of the latter is transmitted to the needle bar

which is also rotated by the motion of the sleeve 403. The needle *n* is secured eccentrically at the end of the needle bar.

Loop-stitching.—A crank-plate 415 rotating with the crank 392 and shaft 277 carries crank-pins 416, 417, Figs. 39 and 50. The pin 416 enters a boss 418 of a link 419 carrying a stud 420. The pin 417 enters the boss 421 at one side of an eccentric-strap 422 surrounding a boss 423 which receives pivotally the pin 420. The boss 423 is formed on the lower end of a pitman 425 pivotally connected at its upper end by a pin 427 to a sleeve 428, the end of the pin carrying a roller which engages a guideway 430 in

the casing 265. A rotary turret 437 is mounted on a ball-race 433 in the casing 265 and from it depends a shaft 438 journaled in a bushing 439 mounted in the casing. The shaft 438 has secured thereto an inclined crank-arm 442. A tubular actuating-rod 443 loosely surrounds the shaft 438 and carries a cross-head 444 with a guide-pin 444¹ which enters an aperture 437¹ in the turret, Figs. 39, 41, and 44. The sleeve 428 fits loosely on the rod 443 and communicates its reciprocation thereto by reason of confinement between the cross-head 444 and a thrust-collar 445. The turret has at one side a slightly inclined boss 446 to receive the fulcrum stud 447 of the lower needle-arm 448 to which is clamped the curved needle 1. The arm 448 is connected by a pitman 451 to the cross-head 444, the vertical reciprocations of which cause an oscillation of the needle in a circular path in a plane slightly inclined to the upper needle. The needle 1 passes through a U-shaped slot 454 in a needle-throat 455 offset from a block 456. A tongue 458 serves as a loop detainer for the upper thread-loops. A groove 459 round the needle-throat 455 receives a cord c, Fig. 57, which is led to the needle aperture through a transverse hole 460. Journaled in a boss 461 of the turret is the pivot-stud 462 of a swinging arm 463 carrying a tubular socket 464 within which is pivoted a pin 465 carrying the shank 468 of the spreader s, the U-shaped outer end of which terminates in a shouldered head 469. The arm 463 is connected by a link 471, Fig. 41, to an elbow-lever 474 pivotally mounted on a stud 475 secured in a boss 476 on the turret. The lever 474 is also connected to the cross-head 444 by a link 478. A bent link 482, Fig. 39, connects a ball-stud 481 on the pin 465 and a ball-stud 483 on the lever 474. This actuation of the spreader produces a dwell when it is in advanced position and a rapid reversal when retracted.

Rotation of stitch-forming devices. The upper and lower stitch-forming elements are oscillated about a vertical axis by mechanism comprising an oscillatory shaft 484, Fig. 1, journaled in the base-plate 264 and the needle-bar frame 292, and formed with a screw-threaded portion 485 on which fits an endwise movable sleeve 486 prevented from turning by a stud 487 engaging a groove 488 in the standard 291. The sleeve carries inwardly-projecting studs with rollers which engage the threads of the screw 485. A pitman 498 engages ball studs 497, 499 on the sleeve and on a lever 501 journaled on the frame and carrying a roller-stud 504 engaging a cam-groove 505 by which vertical movements are thus produced in the sleeve and oscillation in the shaft 484. The movement of the shaft 484 is transmitted to the sleeve 403 surrounding the needle-bar by means comprising an inclined crank 506 on the shaft 484 carrying a pin 507,

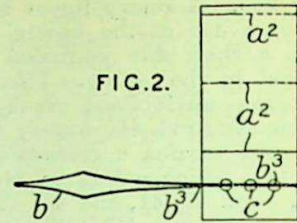


a sleeve 508 surrounding the pin and provided with a cross-member 509, a yoke 511 pivoted to the member 509, and a pitman 512 similarly connected at its other end to the inclined crank 407. The shaft 438 of the looper turret is moved synchronously with the needle bar by a connection similar to that just described including inclined cranks 518 and 412.

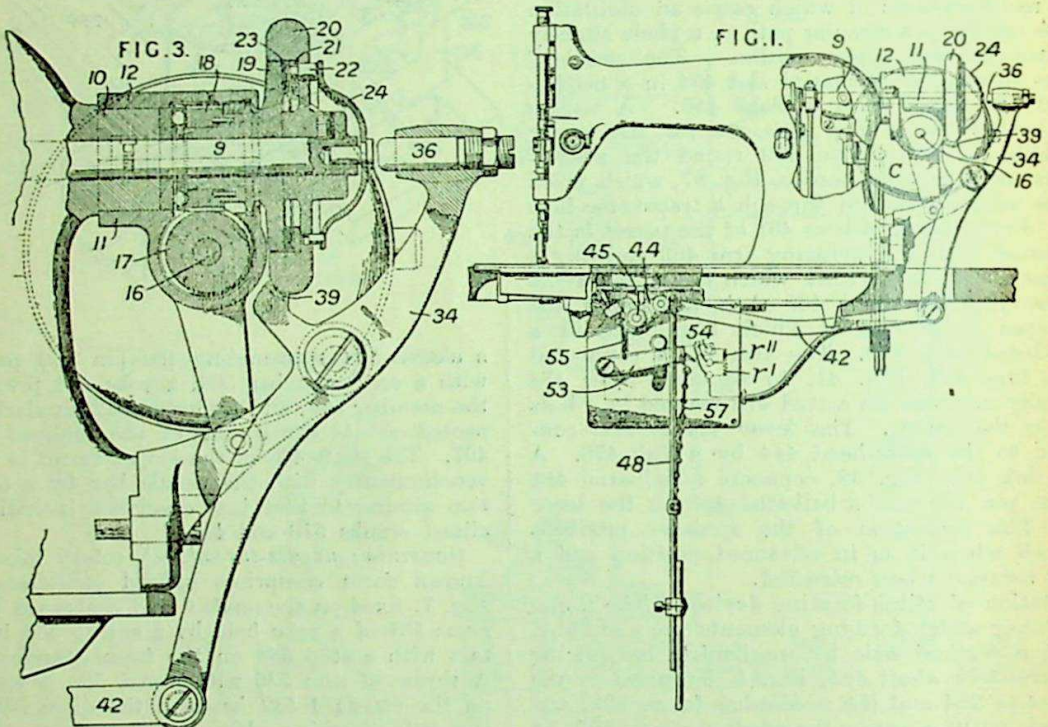
Governing needle-thread.—A rotary take-up of known form comprises spaced cam-discs 530, Fig. 7, fixed on the shaft 9 and embraced by the arms 531 of a yoke held by a spring 533 in contact with a stop 534 on the frame-standard 532. A throw-off arm 535 with a slot 536 is mounted on the standard 532 between the discs 530. As the stitch-forming elements perform two cycles for each revolution of the shaft 9, the cams 530 are formed with opposite active portions so that the thread-drawing actions are produced in each revolution. The needle thread is led through a main tension device, through eyes in the guide-arms 531 across the cams 530 through a guide-eye 538, Fig. 1, and a take-up arm 539 on the needle-bar actuating-arm 401, and thence through the tension device 540 to the needle. The lower thread passes through a tension device 541, Fig. 39, carried by the boss 540 and thence through the bore of the shaft 438 and the eye of a take-up arm 543, Fig. 41, to the middle eye of the needle 1.

185,929. Cross, J. W. Nov. 26, 1921.
No Patent granted (Sealing fee not paid).

Needle-threaders.—The ends b^3 of a fine-pointed resilient wire loop b are threaded through holes c in a metal plate, which is then folded over on the lines a^2 , pressed, and finished



186,130. Fairweather, W., (Singer Manufacturing Co.). June 17, 1921.



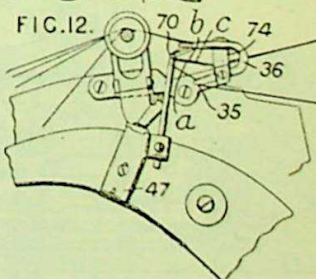
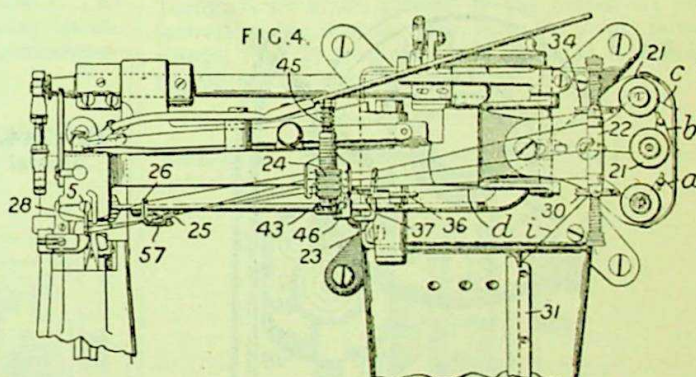
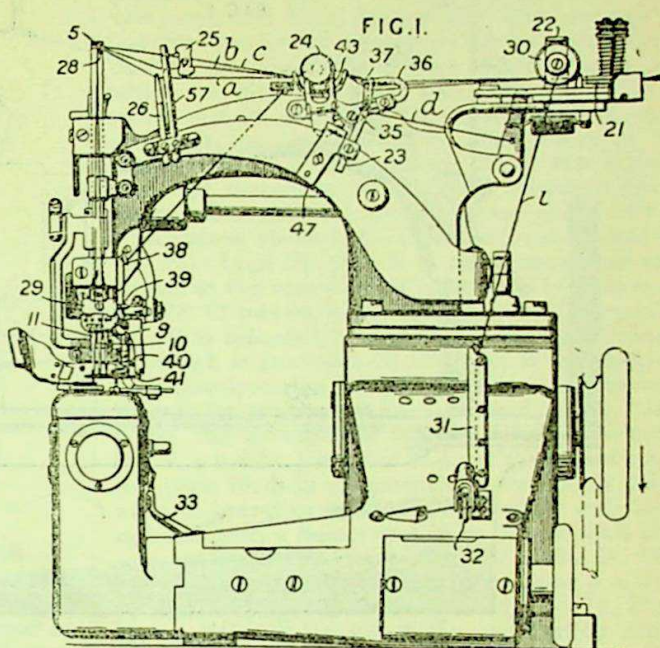
Sewing-machines, driving; starting and stopping gear.—In sewing and other small machines in which the mechanism for declutching the motor from the machine is arranged to cut in resistances into the motor circuit so that the motor runs at reduced speed during the idle period of the machine, a motor C is secured by housings 11, 12 on an outwardly projecting bearing-boss 10 of the main shaft 9. The shaft 16 of the motor carries a worm 17 meshing with a gear wheel 18 secured on a clutch disc 19 turning freely on the shaft 9. A hand-wheel 20 fast on the shaft 9 is clutched to the disc 19 by a ring 21 carrying pins 22 which slide in holes in the wheel 20 and are engaged by a pusher 24 to force the ring into contact with a loose ring 23 of compressed cork &c. which frictionally engages the disc 19. The pusher is actuated by the engagement therewith of an ad-

justable stud 36 of anti-friction material such as oil-soaked hard wood mounted in a lever 34, pivoted on the frame and also carrying a brake-shoe 39. The lever 34 is connected by a link 42 to a lever 44 on a shaft 45, rotatable against the action of a spring by a treadle rod 48. Connected to the treadle rod by a chain 57 is a rheostat arm 53 held by a spring 55, when the machine is at rest, on the uppermost of three contacts 54 so as to include in the motor circuit resistances r^{11} , r^1 . When the treadle rod is depressed to start the machine the resistances are successively cut out, and immediately after the arm 53 meets the lowest contact the clutch is engaged. In a modified construction the motor is mounted on the standard of the machine arm within which the worm 17 and gear 18 are situated.

186,475. **Thompson, W. P.,** (Union Special Machine Co.). July 26, 1921.

Multiple-needle machines; governing needle-thread; governing under-thread.

— In sewing machines for making triple interconnected covering-stitches the pull-off and take-up devices act differentially on several needle-threads. The needle threads *a*, *b*, *c*, pass through tension devices 21, guides 22, a pull-off arm 23, nippers 24, take-up devices 25, 26, through guides 28 and under a tension 29 on the needle-bar 5, to the needles. The pull-off arm 23 is fixed to a bracket 47 on the needle-lever which also carries a plate 46. The plate 46 acts to swing a pivoted lever 43 and so open the nippers 24 against a spring 45. The take-up device for the threads *b*, *c*, of the left-hand and centre needles, Fig. 1, is a light tension 25 mounted on a rod 57 on the needle-lever, on which is also mounted an eyed take-up arm 26 for the thread *a*. The looped thread *a* passes through a tension device 30, under a guide-plate 31 to a thread-control 32, thence through a tube 33 to the looper. The cross-thread *d* passes through a tension 34, eyes 35, 37, on an adjustably-fixed arm 36, a nipper 24 and guide-eyes 38, 39, 40 to the thread-laying hook 41. The thread nippers 24 are open when the needle bar is at the upper end of its stroke; when it is descending the nippers grip the thread and the arm 23 pulls differing amounts of thread for each needle; the movement of the arm 23 between the eyes 35, 37 on the arm 36 also acts to pull off enough cross-thread for the next stitch. The downward movement of the thread-eye 39 on the needle-bar pulls the cross-thread snugly round the needles after they have penetrated the work. When the needle-bar begins to rise, the size of the loops thrown by the needles 10, 11 is controlled by the take-up action of the tension 25. When the needle reaches the upper end of its stroke, the nippers are opened, sufficient slack being given to the needle 11 to complete the stroke. The needles 9, 10 have to pull some thread through the tension 21 to complete their strokes, so tensioning the threads to set the stitch. The lengths of needle-thread pulled off may be independently varied in the modification shown in Fig. 12, in which the threads *a*, *b*, *c*, pass from a pull-off arm 70 through thread-eyes



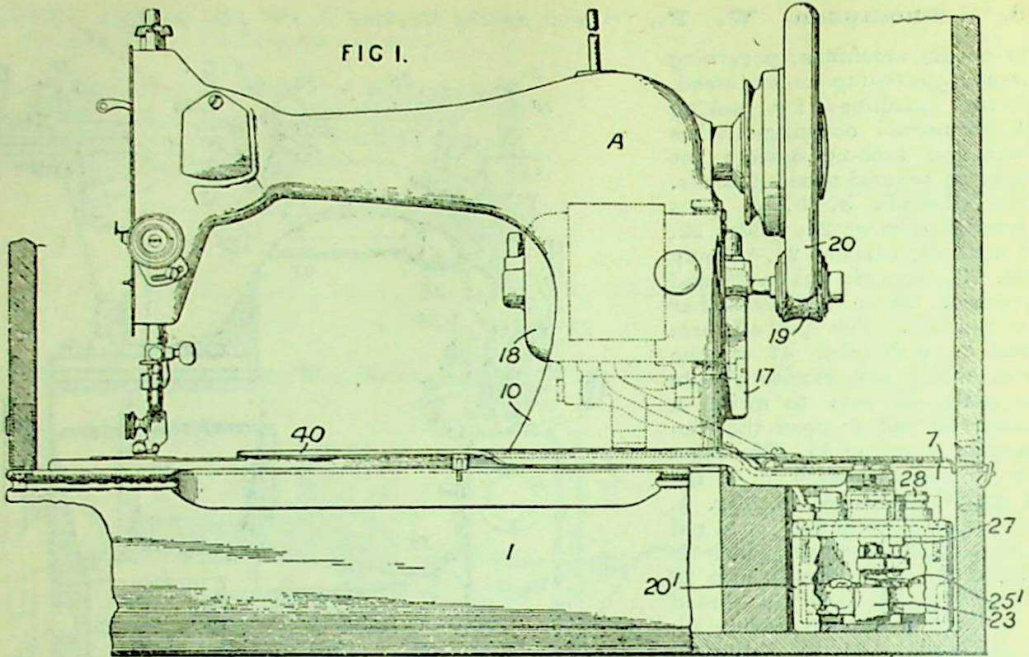
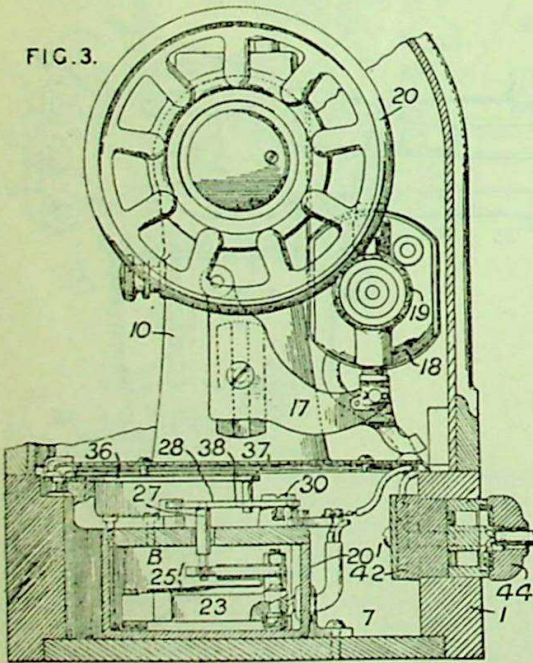


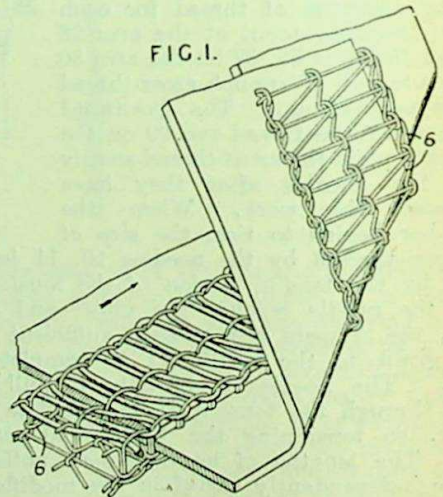
FIG. 3.



which is mounted in a small compartment 7 of the hollow base of the machine. A pin 27, depending from the lever 28, actuates in turn a spring contactor 25¹, which swings over contact points on a resistance element 23. The arm 40 of the bell-crank lever can be operated by the fingers of the operator's work-guiding hand. The motor 18 is mounted on a bracket 17 fixed to the machine standard 10 and its pulley-wheel 19 drives the machine by frictional contact with the fly-wheel 20. The controller B and the motor 18 are wired up to a connection block 42, which is adapted to receive a supply plug 44.

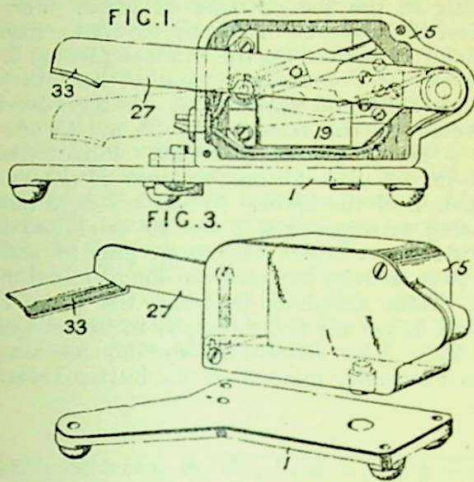
186,744. Thompson, W. P., (Union Special Machine Co.). July 21, 1921.

FIG. 1.



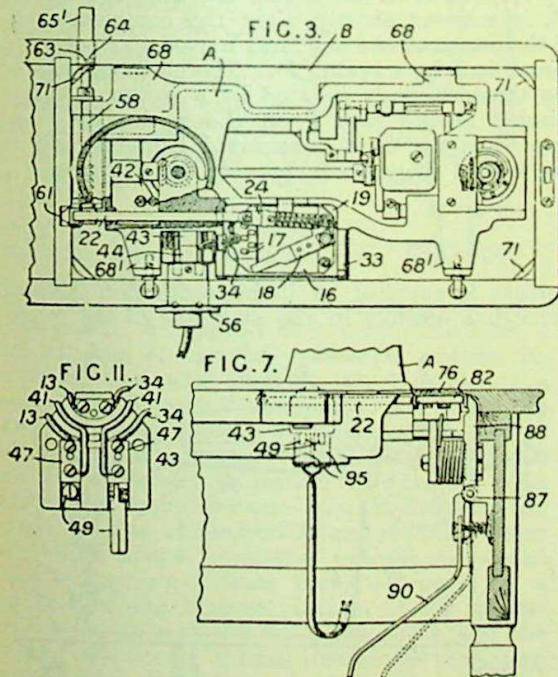
Seams.—Thread loops from three needles are cross-concatenated by a loop of a single looper thread 6 which is passed through each needle-loop from one side, is secured by the next succeeding loop of the furthest needle and is spread triangularly as shown, for the passage of the next succeeding loops of the other needles. The outer needles penetrate one fabric section outside of and adjacent to the edge of the other fabric section. A float thread may be stitched down on the upper surface of the seam.

186,789. Fairweather, W., (Singer Manufacturing Co.). Aug. 26, 1921.



Sewing-machines, driving.—Controllers for electric motors driving sewing-machines are constructed with a pivoted arm rheostat 19 mounted in a casing 5, an operating-lever 27 supported by and situated partly within the casing and having an outside pedal 33, and a detachable base 1. The casing, when detached from the base, may be attached to the treadle plate of a sewing-machine.

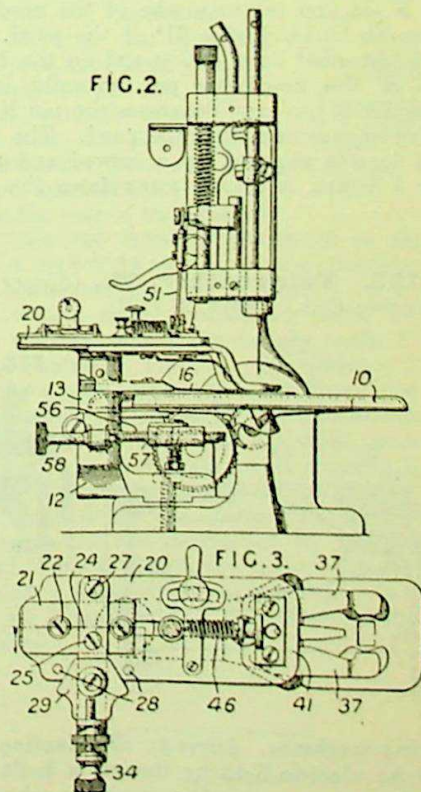
186,798. Fairweather, W., (Singer Manufacturing Co.). Sept. 2, 1921.



Sewing-machines; driving; illuminating-apparatus; frames; stands.—A self-contained electrically driven, controlled, and lighted sewing-head A is run from a single supply circuit and can be

mounted either in a 'drop-head' cabinet or a portable case, the motor control in each case being operated by a knee-lever. The leads of a lighting attachment are connected through a conduit 42 to a distributing-head 43, 44, Fig. 3, to which are also connected the leads 13, 34 of a motor and its controller 19 respectively, in parallel with the lighting circuit. The controller 19 is mounted in a compartment 33 of the hollow base and comprises a bell-crank contactor-lever 18, which is actuated to swing over studs 17 on a resistance element 16, by a push-rod 22 and a link 24. Lugs 68¹, Fig. 3 on the sewing-head are hinged to the rear edge of a portable base B and lugs 68, 71 rest on ledges on the base. The push-rod 22 is actuated by a lever 61 on a rock-shaft 58, which is journaled in the base B and rocked by a knee-lever the hub 65¹ of which is connected thereto by a bayonet-joint connection 63, 64. When the sewing-head is pivoted in a cabinet, Fig. 7, a rod 82, journaled in a spring-pressed support plate 76, is in alignment with the rod 22 only when in operative position and its other end then registers with a tappet arm 88 on a rock-shaft 87, actuated by a knee-lever 90. The parts 24, 61, 82, 90 are normally held in inoperative position by means of springs. The leads 13, 34 41, Fig. 11, on the member 43 of the distributing head are connected as shown to the terminal plates 47. Terminal plugs 49, pivoted to the plates 47, project either horizontally, Fig. 3, or vertically downwards, Fig. 7, to receive the socketed connector 50, 95 for the supply circuit.

187,175. Fairweather, W., (Singer Manufacturing Co.). Feb. 11, 1922.

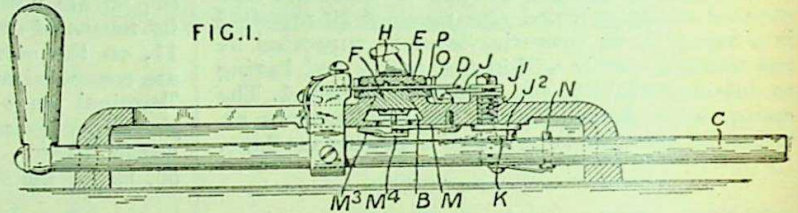


Button-attaching machines.—The button-holding clamp is mounted on a vertical shaft 13 supported in a bracket 12 independently of the cloth-plate 10. The work-plate member 16 of the clamp is rigidly secured to the shaft 13 and the upper member is carried by a bracket pivoted to the upper end of the shaft so that the upper member can be raised by a connection 51 with the presser-foot lifter. The button-gripping members 37, Fig. 3, are pivoted to a plate 20 of the upper clamp member and are urged together in a known way by a slotted plate 41 and a spring 46. The clamp is automatically oscillated by means of a cam, link, and a lever-arm 56 on the shaft 13. The lever has a curved slot to receive a pin on the end of the link and the pin is moved in the slot to vary the movement of the clamp by means of a slide 57 on the lever-arm which embraces the pin and can be moved along the lever by a screw 58. In attaching four-hole buttons, after

the stitching in one pair of holes is completed, the upper member of the clamp is moved longitudinally by hand to position the button for the stitching in the second pair of holes. For this purpose, the plate 20 of the upper clamp member is slidably supported on the bracket pivoted to the upper end of the shaft 13 and is held in place by a plate 21 and screws 22. A hand-lever 24 is pivoted on the fixed plate 21 at 25 and engages a pin 27 on the plate 20. Pins 28 and a wedge-shaped piece 29 on the lever 24 determines the motion of the lever. When two-hole buttons are being attached, the piece 29 is shifted by a screw 34 into contact with both pins 28 and the plate 20 is thereby locked from longitudinal movement. With four-hole buttons, the piece 29 is adjusted to permit the requisite movement of the plate 20. The stitch-forming devices may be vibrated laterally instead of the button-holder.

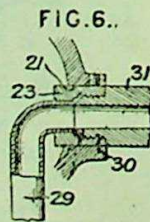
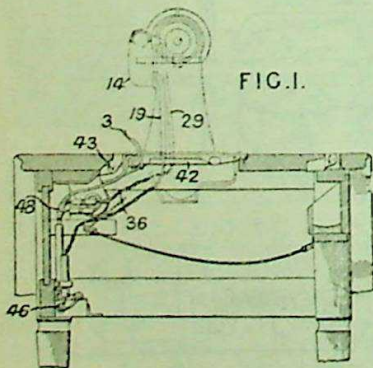
187,178. Kingsmill, H. L. Feb. 23, 1922.

Darning.— In a darning apparatus, diagonally corrugated work-holding plates E, F are pressed together by a spring H and slide in a transverse guide way B. A needle D which passes through suitable slots in the work plates is carried by a needle-bar C. The plate F has ratchet teeth on its under-side engaged by a pawl M which is turned on its pivot to feed the work when a pin N, on the return stroke of the needle-bar, engages an inclined edge M⁴ of the pawl. The pawl is returned by a spring and on the forward stroke of the needle-bar an upwardly inclined surface M³ of the pawl depresses the pin N out of effective engagement with the pawl. The needle-thread loop is engaged by a curved and pivoted looper J which is turned away from the needle



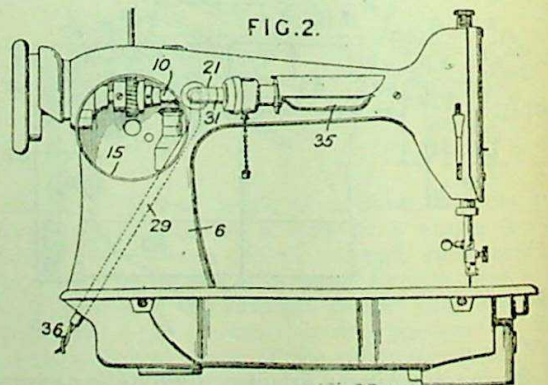
during its forward stroke, by the engagement of a projection K on the needle bar with a lever arm J², is released shortly after the commencement of the return stroke and then moved to engage the thread loop by a spring J¹. The concatenation of the thread-loops is assisted by a spring O and is effected around pins P on the work-plate F so that when the work is removed loops are left at the side of the darn to provide for shrinkage.

187,193. Fairweather, W., (Singer Manufacturing Co.). Sept. 2, 1921.



Sewing-machines, driving; illuminating-apparatus.—An electric-lighting device is built in the rear of a goose-neck of a sewing-machine, and

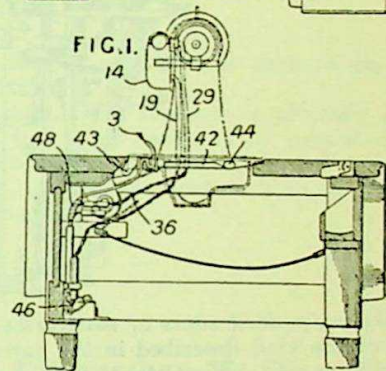
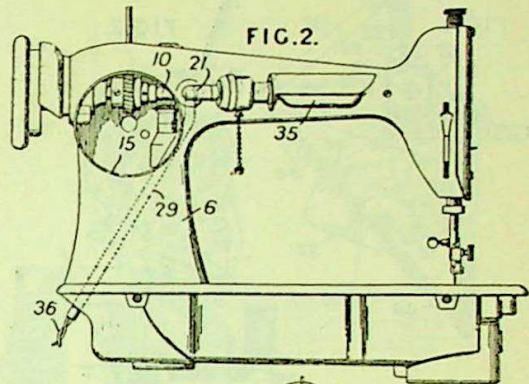
current is supplied to it by conductors passing through a conduit in the standard of the machine.



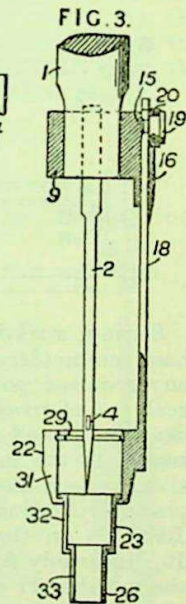
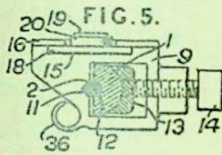
ine. The lighting circuit is run in parallel with a driving circuit from a single supply circuit so

that the illumination is independent of the motor control. Two apertures 15, 21, Fig. 2, are formed in the rear of the bracket-arm 6. In the larger aperture 15 is rigidly mounted a motor 14, Fig. 1, geared to the needle-shaft 10, and connected through a conduit 19 within the bracket-arm to a distributing point 46, to which are also connected the supply leads 3 and the motor-controller circuit. A bushing 23, Fig. 6, is fixed in the smaller aperture 21, and receives the end of a conduit 29, which is flared and clamped by the tapered end 30 of an elbow 31 screwed into the bushing. Lighting leads 36 pass from the lighting device 35, mounted on the free end of the elbow 31, down the conduit 29 within the bracket-arm and are provided with a connection 48 to the supply leads 3. The sewing-head is fitted with a spring-supported lifting plate 42, mounted on a hinge 43.

187,785. **Fairweather, W.,** (Singer Manufacturing Co.). Sept. 2, 1921.



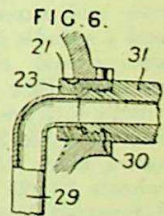
187,487. **White, A. E.,** (Miller Safety Guard Corporation). Nov. 23, 1921.



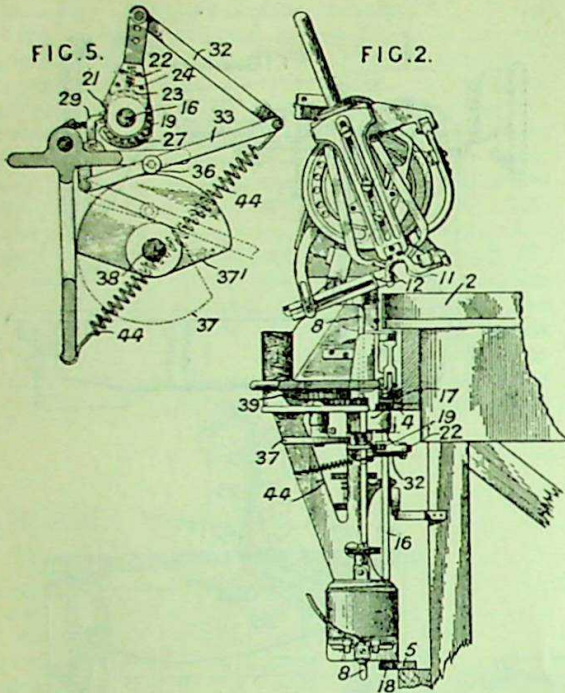
Sewing - machines; finger guards; needle-holders.— In finger guards of the telescoping type described in Specification 130,989, adapted to surround a piercing-member such as the needle of a sewing-machine or the die of a stamping-press the greater part of the piercing-member is arranged to be exposed to view in its raised position, the telescopic sections being also provided with vertically-aligned slots and having preferably a non-circular cross-section in order to maintain the alignment of the slots. Means may be provided for deadening the noise of the guard. As applied to a sewing-machine, a plate 18, Fig. 3, carrying telescopic sections 22, 23, 26 provided with slots 31, 32, 33, slides in a groove 15 in a block 9 clamped to the needle-bar 1 and is retained therein by a cap 16. A stud 19 having a fibre or other cushioning-washer 20 rests in a depression in the cap 16 when the plate 18 is picked up by the needle-bar. The caps 23, 26, and the bore of the part 22 are of oval or other non-circular shape, excessive upward movement of the telescoping-sections being prevented by a ring 29. In the highest position of the needle-bar, the cap 26 rests on the presser-foot, and the eye 4 of the needle 2 rises just above the guard for threading, the free end of the thread being passed through the slots 31, 32, 33. The block 9 and needle 2 are clamped to the bar 1 by a piece 13 and screw 14, Fig. 5, the needle being received in notches 11, 12. The block 9 carries a thread-guide 36.

Sewing - machines, driving; illuminating - apparatus.—

Built-in driving and lighting devices for a drop-head cabinet sewing-machine are run in parallel from a single supply circuit, so that the illumination is independent of the motor control. Two apertures 15, 21 are formed in the rear of the bracket arm 6. In the larger aperture 15 is rigidly mounted a motor 14 geared to the needle-shaft 10, and connected through a conduit 19 within the bracket-arm to a distributing point 46, to which is also connected the supply leads 3 and the motor-controller circuit. A bushing 23 is fixed in the smaller aperture 21 and receives the end of a conduit 29, which is flared and clamped by the tapered end 30 of an elbow 31, screwed into the bushing. Leads 36 for an electric lighting device 35 mounted on the free end of the elbow 31, pass down the conduit 29 within the bracket arm and are connected to the supply leads at 48 in parallel with the motor circuit. The sewing head is fitted with a spring-supported lifting plate 42, hinged at 43. Specification 183,738 is referred to.



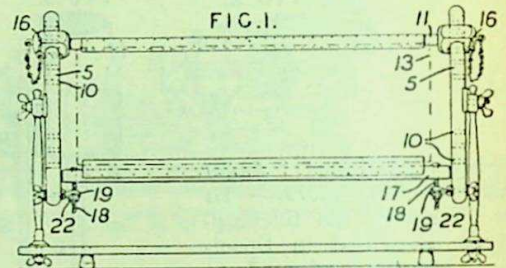
187,816. Droll, J. W., and Droll Patents Corporation. Oct. 1, 1921.
Addition to 132,011.



Sewing padded edges of mattresses.—A machine of the kind described in the parent Specification is moved intermittently along the mattress supporting table by means comprising an actuating shaft carrying a cam, a lever moved by the cam and connected to a ratchet device by a link and a spindle intermittently moved by the ratchet device and carrying pinions which engage a toothed track surrounding the table. Toothed tracks 4, 5 are arranged round the frame supporting the table 2 and are engaged by pinions 17, 18 on a shaft 16 having secured thereon ratchet-wheels 19, 21 with oppositely directed teeth. A bifurcated lever 22 is rotatably mounted on the shaft 16 and carries a spring-pressed pawl 23 engaging the ratchet 19 and manually withdrawable therefrom by a finger-piece 24. The ratchet 21

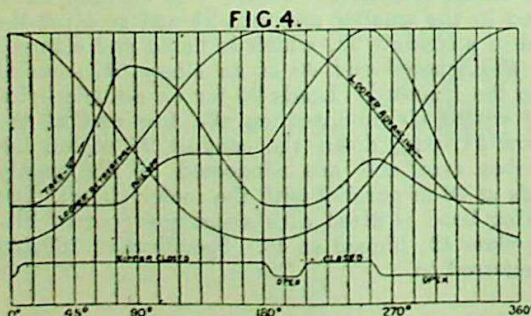
which serves as a stop is engaged by a spring-pressed pawl 29 adapted to be disengaged by a cam surface 27 on the lever when the latter is rotated. A link 32 adjustably connected to the lever is pivoted to a lever 33 a roll 36 on which is acted on by a cam 37 mounted on a shaft 38 driven through gearing 39 from the motor-actuated shaft 8. The cam 37 is timed to rotate once in each packing and stitching cycle of the needles 11, 12 so that at the moment when the needles withdraw from the work the swell of the cam leaves the roll 36 and allows the lever 22 to be moved by a spring 44, to the right of Fig. 5, the pawl 29 being disconnected from the stop ratchet 21 by the cam 27. When the surface 37¹ of the cam 37 engages the roll, the lever 22 is returned and the pawl 23 rotates the shaft 16. At the close of the return movement the pawl 29 is allowed to re-engage the ratchet 21.

187,856. Whitehead, W. Nov. 9, 1921.

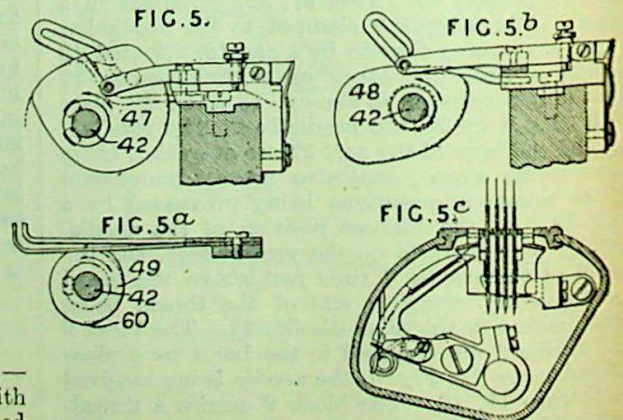


Sewing, work-holders for.—A pivotally-mounted hand embroidery frame, Fig. 1, can be fixed in any required position and the distance apart of each end of cross-members 11, 17 can be independently adjusted to tension the foundation 13, attached to the members 11, 17. The member 11 slides on end-members 5 and can be positioned by placing split-pins 16 in holes 10 in the members 5. Bolts 18 on the member 17 pass through eyes 19, removably fixed in a pair of the holes 10, and the member 17 can be adjusted by means of nuts 22 on the bolts 18.

188,252. Fairweather, W., (Singer Manufacturing Co.). Dec. 24, 1921.

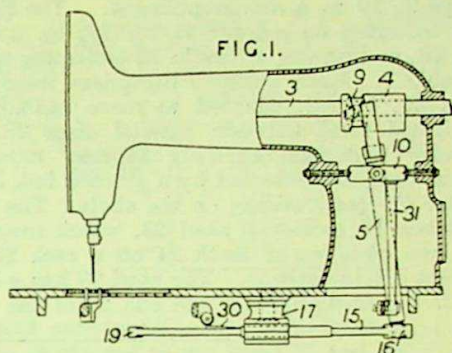


Multiple-needle machines; chain stitching.—Loop-stitch sewing-machines are provided with a thread-nipper and pull-off which are so actuated



that the pull-off draws back through the nipper any surplus of looper thread remaining after the stitch has been drawn to ensure that each stitch is commenced with the thread in the same condition. The arrangement is described in its application to a four-needle, single-looper machine of known type, and comprises a pull-off cam 47, nipper-operating cam 49 and take-up cam 48 mounted on a shaft 42. In a cycle beginning with the needles up and the looper forward, the nipper is closed by a hump 60 on its cam and as the looper recedes the slack of its thread is taken up by the take-up cam. The pull-off begins to draw thread from the supply before the looper reaches the end of its receding movement, the take-up at the same time giving up thread to the loop. When the needles are down and the looper withdrawn the nipper is opened for a short time to allow the pull-off, which is then operating at its greatest effectiveness, to draw back any surplus thread through the nipper. The nipper is then closed and the pull-off continues to operate to withdraw thread sufficient for the longest stitch the machine can produce. The timing of the various parts is shown by the diagram, Fig. 4. It is not essential for the nipper to be closed at the point 210° after the pull-off has drawn back the surplus thread.

end 16 of the lever is moved through a circular or other path by means of a lever 5 universally mounted on a gimbal support 10 and, at its upper end, engaging with both a cam-groove 9

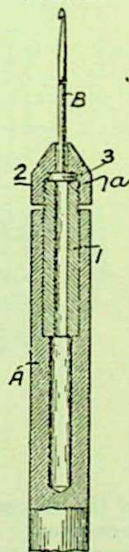


and the surface of an eccentric drum 4 on the driving shaft 3.

Feed by dogs.—The feed-bar is pivotally supported on a feed shaft oscillated by means of an arm 31 depending from the outer gimbal member and is given up-and-down motion from an incline 30 on the lever 15.

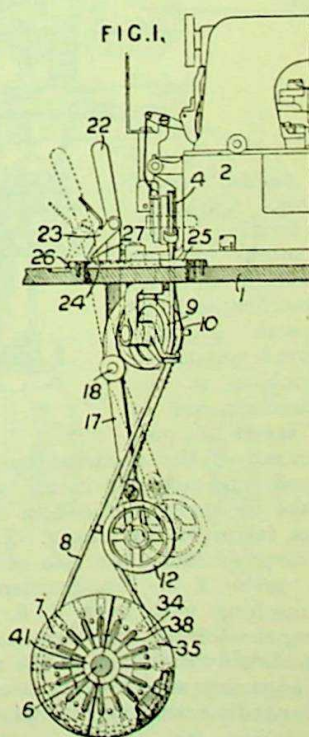
188,616. Wade, H., (Boye Needle Co.).
April 24, 1922.

FIG. 2.



Crochet-hooks.—In a crochet-hook of the kind in which the needle is adapted to be reversely turned and inserted in the hollow handle the handle A is provided with a nipple 1 the projecting part 1a of which is threaded to engage a cap 2. The needle B is formed with a basal disc 3 which is clamped by the cap 2 against the end of the nipple 1.

189,204. Fairweather, W., (Singer Manufacturing Co.). Aug. 23, 1921.

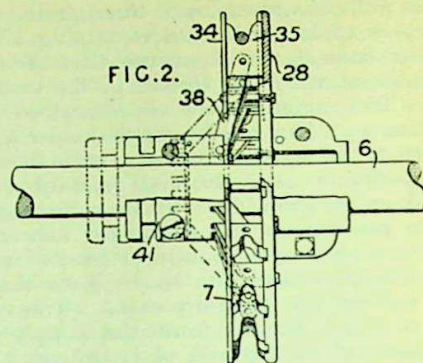


Sewing-machines, driving.—Variable-speed gearing comprises an automatic centrifugal

188,736. Cooper, J., and Twin Bobbin Sewing Machine Co., Ltd. Aug. 10, 1921.

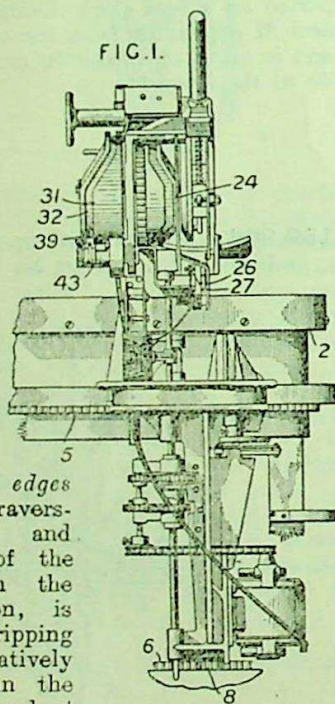
Lock-stitching by hooks; upper and lower shafts, connecting.—A rotary hook shaft is driven by connection with the end 19 of a lever 15 sliding within a pivoted block 17. The opposite

driving-pulley 7, Fig. 1, controlled and disconnected by a movable jockey 12. The invention is applied to sewing-machines 2 upon a power table 1. The pulleys 7 are secured to a driving-shaft 6, and the belt 8 passes over fixed guide pulleys 9, 10 to a driven pulley 4. The pulley 12 is mounted on a lever 17 turning on a fixed pivot 18, and having a handle 22 projecting above the table 1. Each pulley 7 comprises tread segments 35, Fig. 2, adapted to move radially by centrifugal force between parallel discs 28, 34. In order that the segments 35 may move in unison, each is connected by a pivoted link 38 to a collar 41 freely sliding on the shaft. The control lever 17 carries a pawl 23, which may engage one of a set of teeth 24 on a rack 25 for different driving speeds. The pawl 23 has a hook end 27 for engaging over the end 26 of the rack



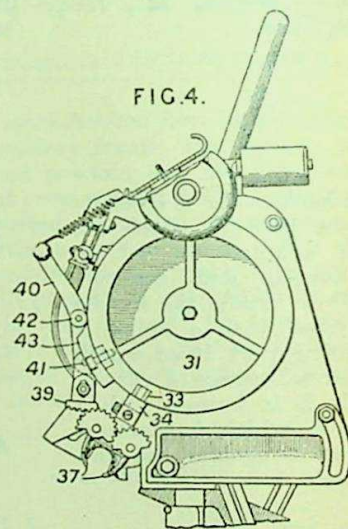
to lock the lever in the "no-drive" position with the belt loose.

189,278. Droll, J. W., and Droll Patents Corporation. Sept. 20, 1921. Addition to 132,011.



Sewing padded edges of mattresses.—A traversing roll-forming and sewing machine of the type described in the parent Specification, is provided with gripping means moved relatively to the machine in the opposite direction and at the same speed to prevent movement of the mattress by the tension of the thread, and operated in its return movement to take up slack produced in the edges of the mattress fabric by the tufting. The machine, which is traversed along the side of a mattress-supporting table 2 by intermittently rotated pinions 8 meshing with racks 5, 6, is provided with packing needles 26, and a sewing needle 27. A frame 34 slidably mounted on the machine has a stud 33 engaging a slot 32 in a cam disc 31 fixed to the needle-actuating cam 24, and so pro-

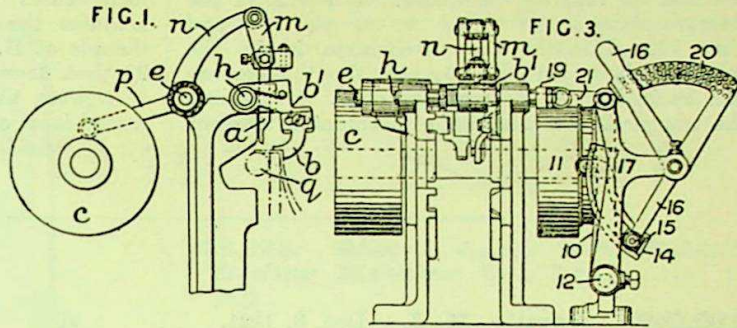
portioned that the slide moves backward at the same rate as the machine moves forward between its packing and sewing periods. The slide carries a pair of grippers 37 actuated by an elongated adjustable sector 39 mounted on a lever 40 pivoted on the machine at 41 and oscillated intermittently by a cam block 43 on the cam 31 engaging a roll 42. The grippers are arranged to seize the edge of the mattress before the machine starts its forward movement and to hold it during that movement against the tension



of the thread. At the completion of the forward movement of the machine the grippers are opened and the slide moved by the cam 32 to restore them to normal position, but just before this movement is completed they are again closed by the engagement of the block 43 with the roll 42 thus taking up slack in the edge of the mattress by moving the ticking toward the packing needles which have by then entered the mattress. The block 43 is adjustable to allow variation in the amount of slack taken up.

189,331. Sokal, S., (Maschinenwerke zu Frankfurt a Main vorm. Kolb, Rieber, & Co., Ges.). Nov. 5, 1921.

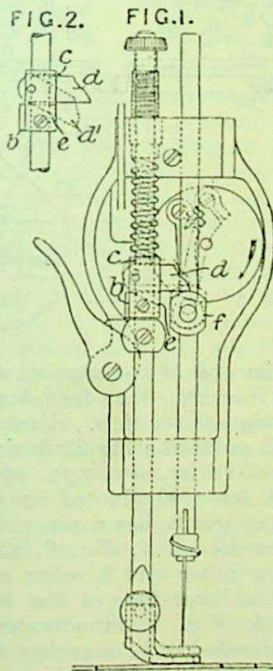
Boot-sole stitching and assembling machines.—A sewing-machine for turned felt shoes is provided with jaws which lay the upper upon the sole and transport the shoe for a fresh stitch. A jaw *b* adjustably secured to an arm *b'* mounted on a shaft *h* co-operates with a jaw *a* operated by a link *m* and lever *n* mounted on a shaft *e*. A collar to which the lever *n* is attached is connected by a claw-clutch to the hub of a lever *p* mounted on the shaft *e* and actuated by a cam *c*. The carrier of the jaw *a* in its descent engages the arms *b'* and moves the jaw *b* to grip the work while the jaw *a* is laying-over the upper. The upper and sole are sewn by a curved needle moving in a path *q*. The shafts *e*, *h* are moved longitudinally to shift the work during which movement the levers *p*, *n* remain operatively connected by the clutch. The shafts are connected by a cross bar *19* connected by a link *21* to a lever *17* pivoted



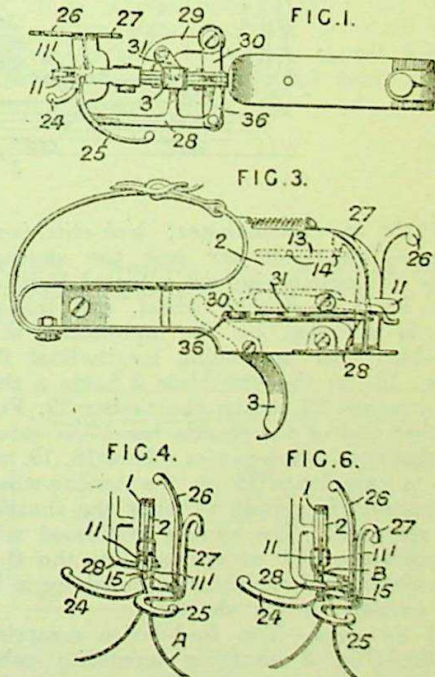
at 12 and carrying a sector shaped extension 20. An arm 16 pivoted to the lever 17 and adjustable by a handle, which may be locked to the sector 20, is pivoted to a block 15 movable in a guide 14 rigidly mounted on a lever 10 carrying a roller engaging a cam-groove in a disc 11. By adjustment of the arm 16 relative to the sector the position of the block 15 in the guide 14 is varied and hence the length of the feed.

189,437. Prach's Mechanische Werkstätten. Nov. 24, 1921, [Convention date]. Void [Published under Sect. 91 of the Act].

Sewing - machines; presser-bars lifting automatically.—In sewing-machines particularly of the rotating shuttle and central spool type for use in darning embroidery &c. the presser-bar is lifted by the needle-bar, just before the latter reaches the top of its stroke, by the engagement of a boss *f* on the needle-bar with a pivoted member *d* mounted on an extension *c* secured to a boss *b* on the presser-bar. The extension is bent to limit the upward movement of the member *d*, but the parts are cut away at *e* so that it may be turned downwards into the position shown at *d'* when the machine is to be used for ordinary purposes.



189,609. Eanes, H. P. Oct. 17, 1921.

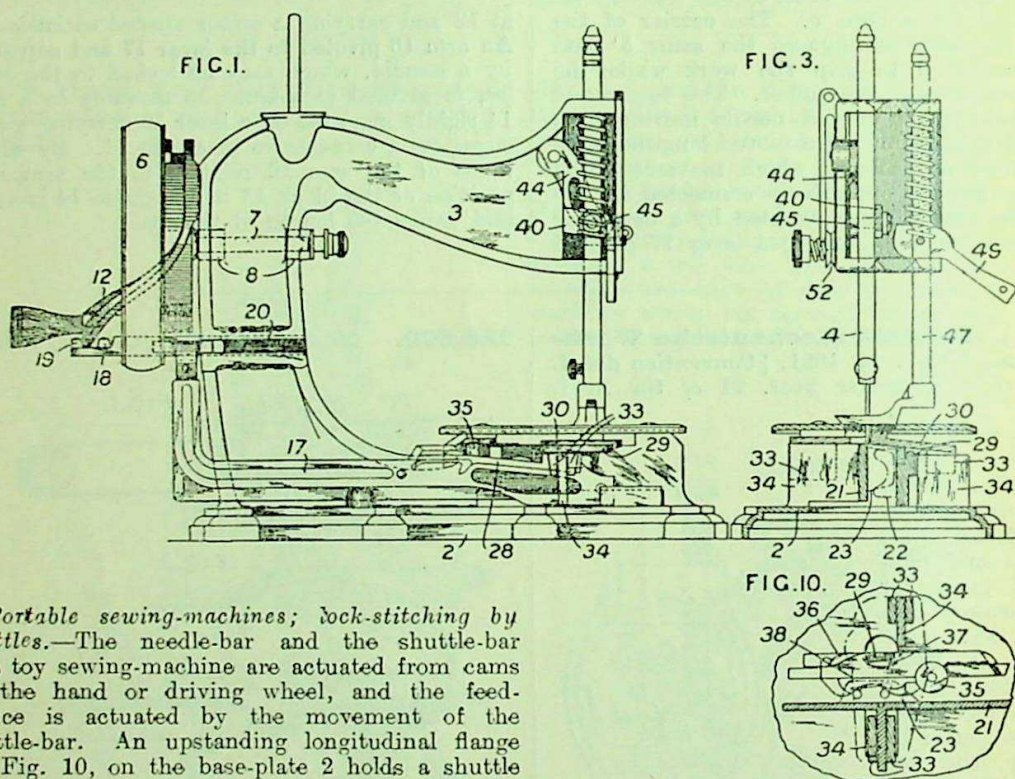


Knot-tying devices.—A device for tying a spooler's knot comprises a fixed knotting-bill 11, 11', Fig. 1, a pivoted clamping and cutting element 15 co-operating with the knotting bill, a stripper-plate 2, Fig. 4, an oscillating tying hook 28, and thread-guiding fingers 24 - - 27. The tying-hook 28 is connected by links 30, 31, Fig. 1, to a bracket 29 fixed to the device, and

is actuated by contact of a trigger 3 first with a tail piece 36 on the hook, and then with both the link 30 and the tail-piece. The path of the stripper-plate is controlled by a slot 13 and pins 14. Initially the mechanism is in the position shown in Fig. 3, and the threads are laid as in Fig. 4, A being the ends. By pulling the trigger 3 the tying-hook is actuated to draw

the threads round the cutter element 15 to the position shown in Fig. 6. The trigger now reciprocates the stripper-plate, which in turn actuates the element 15 to clamp and cut the threads at B, Fig. 6, the neck of the tying-hook 28 then draws the threads to the right, Fig. 6, to tighten the knot as the stripper 2 pushes the thread-loop off the tying-bill 11, 11¹.

189,649. **Neville, H. J.** Dec. 3, 1921.



Portable sewing-machines; lock-stitching by shuttles.—The needle-bar and the shuttle-bar of a toy sewing-machine are actuated from cams on the hand or driving wheel, and the feed-device is actuated by the movement of the shuttle-bar. An upstanding longitudinal flange 21, Fig. 10, on the base-plate 2 holds a shuttle 23 in a recess 22 in the shuttle-bar 17, Fig. 1. The other end of the shuttle-bar 17 is mounted in a guideway 20 and carries rollers 18, 19, which engage a cam-flange 12 on the driving-wheel 6. The flange 12 is gapped to allow the shuttle-bar to be removed. The shuttle is formed with a bobbin-seating, and an aperture for the thread, the unwinding of which is retarded by a blade spring carried by the shuttle.

Feed by dogs.—The feed-device comprises a plate 30, Fig. 3, carrying depending webs 33 which embrace upstanding transverse webs 34 on the base plate 2. A depending lug 29 on the plate 30 rests on an incline 28, Fig. 1, on the shuttle-bar, the reciprocation of which imparts vertical motion to the feeding-device. At the end of the forward movement of the shuttle-bar a roller 35, Fig. 10, thereon engages the lug 29 and moves it in a transverse direction to feed the work. As the shuttle-bar returns the feed-device is lowered to its former position and near

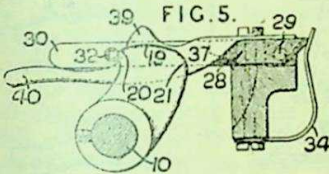
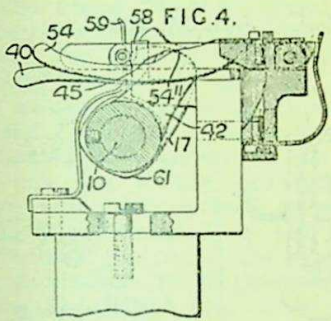
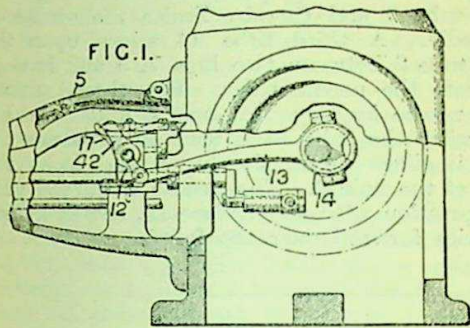
the end of the stroke, a shoulder 36 on the bar 17 shifts the feed-device transversely to its original position. Upstanding lugs 37, 38 serve to guide the lug 29 during its cycle of motion.

Needles, driving; governing needle-thread.—A lever 40 pivoted on the side of the overhanging arm 3, has a pin-and-slot connection with the needle-bar 4, Fig. 3, at one end, and carries at its other end a roller engaging a cam-groove in the inner face of the wheel 6. A take-up lever 44, Fig. 1, is actuated by a pin 45 on the needle-bar 4, engaging a curved slot in the lever. A thread-tension device 52 is provided.

Presser-bar lifting devices.—A presser-bar 47, Fig. 3, normally spring-pressed downwards, can be lifted by means of a cam-ended lever 49, and locked thereby in the raised position.

Bobbins, winding.—The hand-wheel spindle 7, Fig. 1, is extended beyond its inner bearing 8 to constitute a bobbin-winder.

189,680. Fairweather, W., (*Singer Manufacturing Co.*). Jan. 11, 1922.

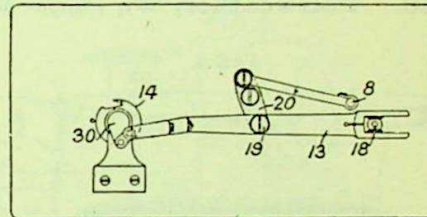


Multiple-needle machines; chain-stitching.—A take-up for the control of the under-thread comprises an oscillating arm having a concave thread-engaging edge at one side ending in a thread-engaging projection from which a thread-engaging surface extends to a convex cam edge on the other side, the arm coacting with fixed cast-off arms effecting differential thread control on oscillation of the shaft. A rock-shaft 10 mounted in the work-shaft 5 is oscillated by an eccentric strap 14 and arms 12, 13. A cam-arm 17, slotted to receive a cast-off arm 37, 39, 40, is mounted on the shaft 10 and is formed with a forward cam edge 20, a flat curve 19 and a rear convex edge 21. Arms 30 provided with guide eyes 32 extend on each side of the arm 17 and are carried by a plate 28 pivoted at 29 and having a tail-piece engaged by a spring 34 by which it is retained in lowered or raised position. A cast-off arm 37 secured on the plate 28 extends into the slot of the arm 17 and comprises a sharply inclined part 39 and a practically horizontal part 40. A slotted pull-off arm 42 having a cam surface 45 is arranged, similarly to the arm 17, between arms having thread eyes and embraces a take-up arm 54 on which is a projection 54'. A thread-nipper comprising a spring 59 engaging a block 58 is arranged between the take-up and pull-off and is opened, when the arms 17, 42 are in either of their extreme positions, by cam-projections 61 engaging the spring. A considerable amount of take-up is necessary

during the retracting movement of the looper, which takes place as the arm 17 moves to the left from the position shown in Fig. 5, and this is effected by the concavity of the arm whereby the horizontal part 40 of the cast-off is not effective until the arm has advanced a considerable distance. The arrangement is described as applied to a multiple-needle machine.

189,694. Cooper, J., and Twin Bobbin Sewing Machine Co., Ltd. Feb. 9, 1922.

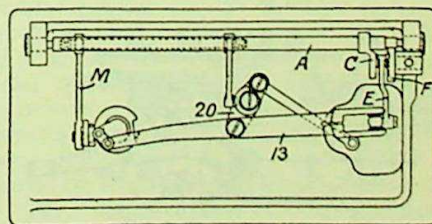
FIG. 4.



Lock-stitching by hooks; upper and lower shafts, connecting.—A rotary hook 14 is actuated by a crank 30 and drag link connection with one end of a lever 13 which compounds motions received from two cams on the main shaft. The lever 13 is pivoted upon a lever 20, receives rocking movements about its pivot 19 from a cam-actuated lever 18, and is moved bodily by the oscillation of the lever 20 from a second cam-actuated lever 8.

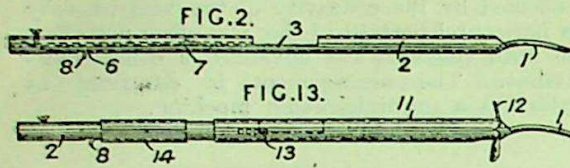
189,695. Cooper, J., and Twin Bobbin Sewing Machine Co., Ltd. Feb. 9, 1922.

FIG. 3.



Sewing-machines; feed by dogs.—A feed-bar M receives up-and-down movements from a cam-groove in the boss of a lever 20 forming part of the rotary hook driving mechanism. For the to-and-fro movements, a grooved arm C is fixed on the feed rock-shaft A and is engaged by a pin which also slides in a groove in a fixed arm F. The pin is carried in the end of a link E reciprocated by connection with an oscillating lever 13. The length of stitch is regulated by changing the inclination of the fixed arm F.

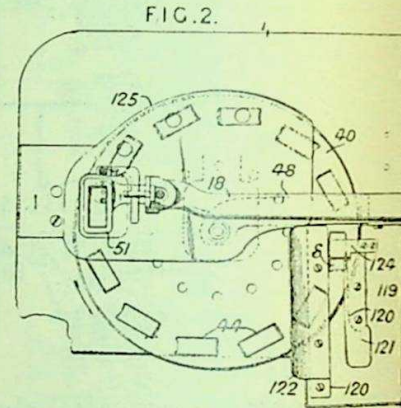
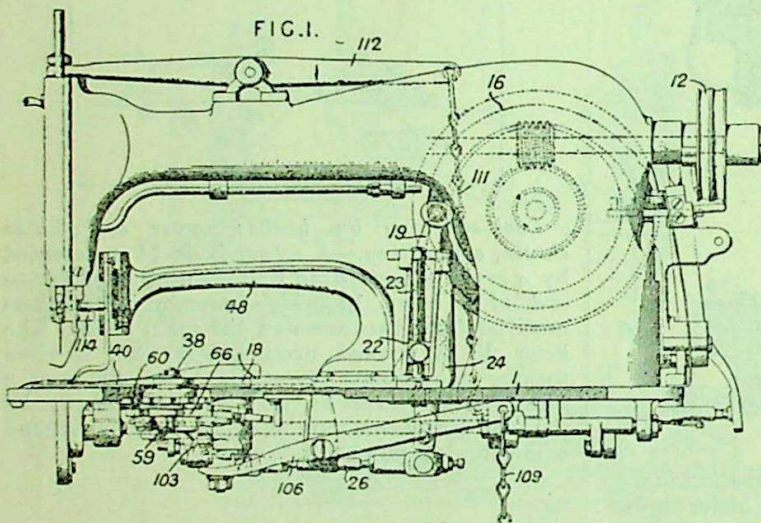
189,705. Thornton, A. A., (*Art Needle Manufacturing Co., Inc.*). Feb. 27, 1922.



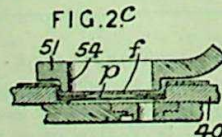
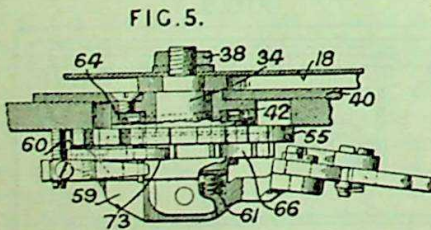
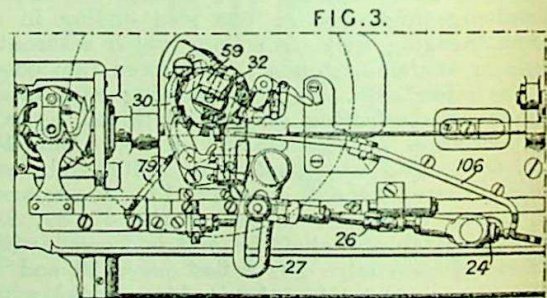
Hand-sewing tools.—A curved tufting needle 1 is formed integral with or secured to a tube 2

which slides in a holder 11 having a broad fabric-engaging surface 12. A screw 13 crossing the tube 11 diametrically passes through a gap 3 in the tube 2 and thereby limits the stroke of the needle. A third tube 14 slides upon the needle tube 2 between two lugs 7, 8 and is used to actuate the needle tube. The thread passes to the needle by way of a hole 6 under the lug 8 and when the tube 14 is used to withdraw the needle it slides up to the lug 8 and locks the thread at the hole 6. The needle is curved and, in co-operation with the surface 12, serves to feed the device forward over the fabric.

190,048. Fairweather, W., (*Singer Manufacturing Co.*). Jan. 24, 1922.



Labels, attaching.—A sewing machine for attaching labels, patches &c. comprises a feed-disc having slots in which the labels are placed and by the intermittent rotation of which they are presented successively at stitching position and on the underside of the work. During the



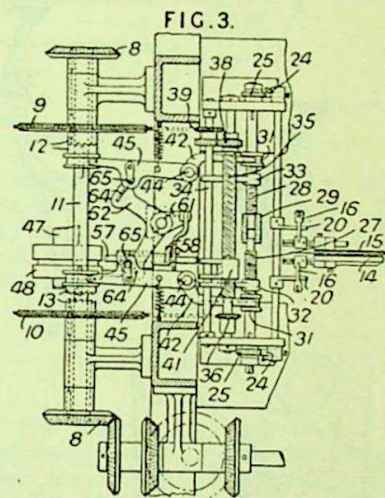
stitching a spring actuating the disc is wound by movement of the feed and on completion of the stitching the disc is advanced one step by the spring when released by a catch device operated by the presser-foot. A machine of known type is provided with a label-supporting

disc 40 mounted on a feed-bar 18 to which longitudinal and lateral feed movements are given

by grooves in a pattern wheel, one being shown at 16. The longitudinal movements are given by a lever 19 engaging the groove 16 and provided with a slotted arm embracing a block 22 adjustable on a post 23 in the slide plate 18. The groove actuates a lever 24 connected by a link 26 to the slotted arm 27 of a bell-crank lever pivoted to the base plate, its other arm being connected by a link 30 to a head 32 secured to a bearing-pin 34 which enters an aperture in the bar 18 and is secured therein by a nut 38, Fig. 5. The disc 40 is secured to a hub-member 42 rotatable on the pin 34 and rests on the surface of the plate 1. The labels *p* are received in cavities 44 formed with retaining lips and are held in place against the fabric *f* during the stitching by the flange 54 of a presser-foot 51 mounted in the head of an arm 48 rigidly secured to the bar 18. The hub 42 is formed with a flange 55 having notches 56 in which engages a tooth 60 on an escapement lever 59 pivoted on the head 32 and controlled by a spring 61. A spring 64 arranged in a cavity in the hub is connected at one end to the hub and at the other to a ring adjustably secured to a ratchet disc 66. A pawl 73 mounted on the head 32 engages the ratchet to hold the spring in tension. The motion of the work-holder in the stitching of the first longer side of the label is utilized to wind up the spring 64 by turning the ratchet 66 one step through the action of a pawl 77 pivoted on the bed 1 and held in forward position against the retracting action of a spring 79 by a latch 81 engaging a stud 85 on the pawl and formed with a tail-piece 83 projecting into the path of a pin 89 carried by the head 32. After the spring has been wound the latch 81 is tripped by the stud 89 releasing the pawl 77 which is withdrawn by the spring 79 to inoperative position. A stud 87 on the pawl is engaged by a part connected with the presser-foot by the operation of which the pawl may be reset. In order to ensure the correct positioning of the disc when rotated by the spring there is pivoted on the lever 59 a bell-crank lever one arm 93 of which engages the notches 56 of the member 42. Another arm 94 of the lever carries a pin 95 engaged by a spring-controlled latch 97 pivoted at 98 to the lever 59. The lever 59 is held by its spring during stitching in the position shown in Fig. 5. During the stitching of the second side of the label the latch 97 is tripped by a projection 101 whereupon the bell-crank lever turns under the action of a spring 100 so as to bring the arm 93 immediately below the preceding notch 56 of the hub, into which it passes when, at the conclusion of a stitching operation, the lever 59 is rocked by the operator to release the tooth 60 from a notch. The hub and plate 40 are thereupon rotated by the spring 64 until the arm 93 is brought to rest by engagement with a stop 102. The device for rocking the lever 59 comprises a lever 103 which is moved to engage the lever 59 by a lever 106 actuated by a chain &c. 109 which at the same time acts through a chain 111, lever 112 and bar 114 to lift the presser-foot. An extension of the lever 103 engages the pin 87 to reset the pawl 77. The labels are inserted in the cavities 44 at a filling-station comprising a pan 119 provided with guide-strips

120 registering with the sides of a cavity, one strip supporting a retaining strip 121 and the other a guard plate 122. A plate 124 deflects a label into the cavity. A guard plate 125 covers the labels between the filling station and the stitching point to prevent disarrangement.

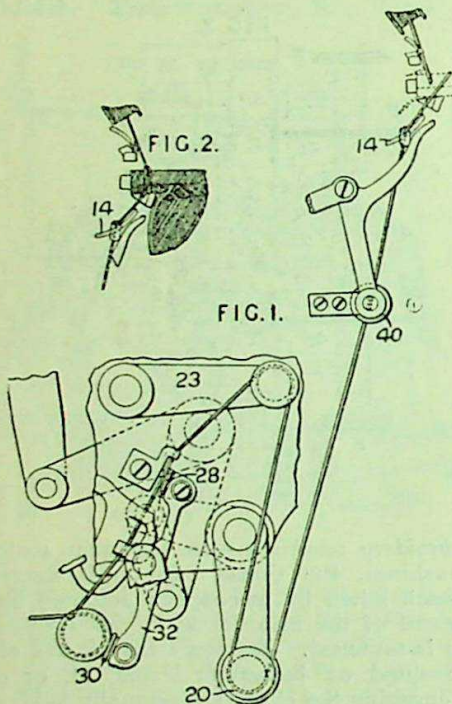
190,166. **Klaiber, C., and Rohner, E.,**
(Assignees of Eberhardt, H.). Dec. 9, 1921,
[Convention date].



Embroidery machines.—In Heilmann embroidery-machines, the thread take-up is decreased after each stitch by mechanism actuated by the movement of the material as it yields when the thread is tautened. Festoon forks 14, and shears 15, mounted on bell-crank levers 16, or other parts engaging the cloth, are normally held vertical by a spring and, when shifted by movement of the material, transmit a slight rotation to axially-movable spindles 27, 28 through levers 20 and ratchet-and-pawl connections 24, 25. The inner ends of the spindles 27, 28 engage in a fixed sleeve 29 and the members are oppositely threaded so that movement of the material produces uniform intermittent motion of stops 32, 33 towards each other. The stops 32, 33, and also a nut 41 mounted on a screwed spindle 35, loosely engage a rod 34. Chain-wheels 9, 10, alternately, are coupled to a continuously-driven shaft by means of clutches 12, 13 and through the free-wheel gears 39, 38 and 36, respectively and rotate the spindle 35 in opposite directions. The wheels 9, 10 also drive, through bevel gears 8, the thread take-up mechanism. Arms 42, 45 of levers pivoted at 44 engage respectively in grooved collars 31, fixed to the spindles 27, 28 and in the members 12, 13. The clutches 12, 13 are held open alternately by means of a pivoted angle-part 62, projections 64 on which engage behind pins 65 depending from the lever-arms 45. The part 62 has an arm 61 rocked by a crank 58 on a shaft 57, which is eccen-

lated intermittently from a switch-cam 48 on a continuously-running shaft 47. When the nut 41 strikes the stop 32 it moves the spindle 28 axially, so de-clutching the wheels 9. The wheel 10 is then coupled to the shaft 11 and the spindle 35 oppositely rotated until the nut 41 strikes the stop 32. The take-up mechanisms on opposite sides of the material are thus driven alternately, the take-up decreasing with the travel of the nut 41.

190,547. British United Shoe Machinery Co., Ltd., (United Shoe Machinery Corporation). Sept. 24, 1921.



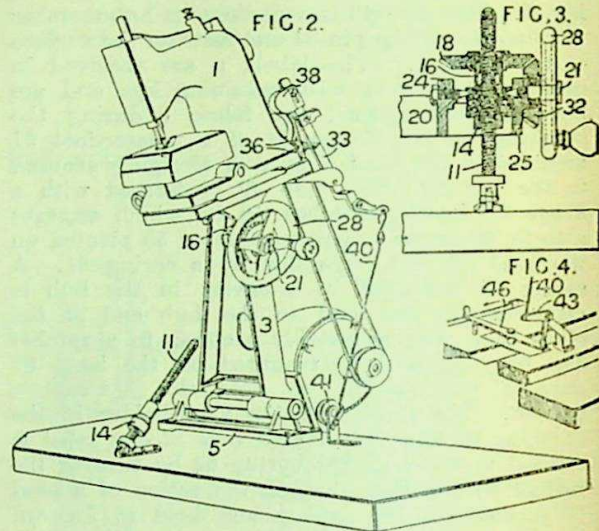
Boot-sole sewing-machines; starting and stopping gear.—The stop-gear of a lock-stitch out-sole stitcher is arranged to stop the machine when the take-up has drawn the loop of needle-thread close to the surface of, but not into, the work, as shown in Fig. 2.

Governing needle-thread.—The devices are of the same general type as described in Specifications 23478/10, 24331/12 and 1021/14, but two alternatively acting thread locks 28, 30 are mounted on a single lever 32, the auxiliary take-up 23 is positively actuated and a supplementary thread-tension 40 is placed between the main take-up 20 and the looper 14.

190,636. Fairweather, W., (Singer Manufacturing Co.). Dec. 20, 1921.

Sewing-machines; stands; starting and stopping gear.—Sewing-machines, such as machines for

sewing the mouths of filled sacks, are adjustably supported in working position by means comprising separable parts which permit the sewing machine to be moved freely out of operative position. A machine 1 pivotally mounted in a bracket arm 3 hinged to a support 5 is adjustably supported by a screw 11 pivoted to a base and carrying a nut 14 which enters a tapered sleeve 16 pivotally mounted on screws 20, 21 in bracket-members 24, 25 on the machine frame. A bevel-



wheel 18 fast to the sleeve 16 meshes with a bevel-wheel 32 journaled on the screw 21 and rotatable by a hand-wheel 28 to effect the adjustment. On lifting the machine the sleeve 16 is freely disengaged from the nut 14. A belt shifting arrangement is provided comprising a lever 33 with belt-engaging pins 36 and weight 38 actuated by a flexible connection 40 passing over a pulley 41 to a bell-crank lever 43 pivoted at one end to a foot-operated lever 46.

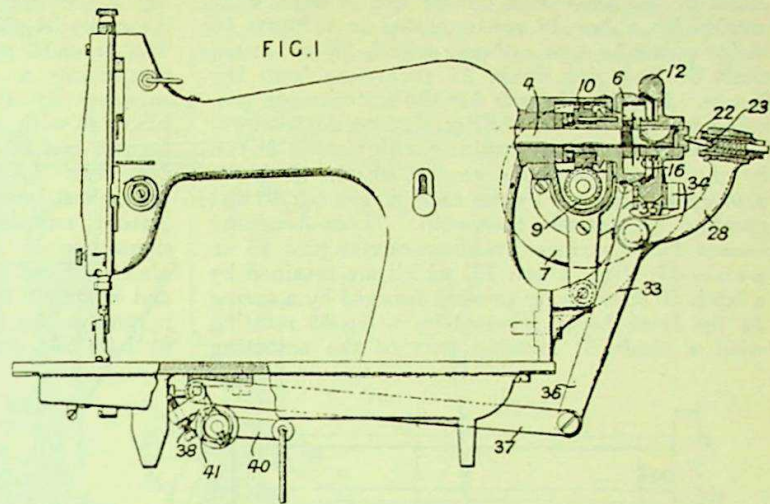
190,640. Head, D. E. Dec. 23, 1921.

Needle-threaders.—A threading device for needles, beads, and like articles comprises a diamond-shaped loop *a* of springy metal such as tungsten or its alloys, the sides *s*, *t* of which extend beyond their point of intersection and are secured at a short distance beyond such point of intersection in a holder *b* of vulcanized rubber or other material by means of a plastic cement or the like. The screw-threaded portion *c* of the holder *b* is adapted to screw into a cylindrical cover for the loop *a*. The cover may also be used as a needle receptacle. The Provisional Specification states that the loop may be lens shaped.



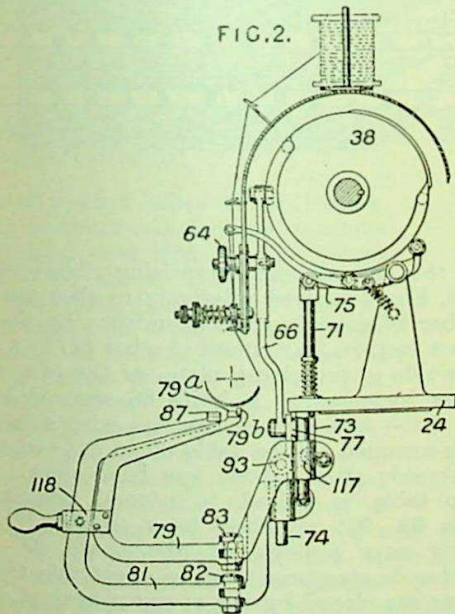
190,663. Fairweather, W., (Singer Manufacturing Co.). Feb. 13, 1922. Addition to 186,130.

Sewing - machines; starting and stopping gear.—In means for stopping and starting sewing-machines of the type described in the parent Specification, a movable brake is adapted to press on that side of the driven clutch member which engages the driving-member, so moving it into contact with a stationary brake surface. Means are also provided for moving the clutch members into engagement. An electric motor 7 drives by spiral gears 9, 10 a clutch member 6 loose on the main shaft 4, to which the driven member 12 is slidably keyed. The member 12 is connected by a ball-ended link 22 to a spring-pressed plug 23 carried by the arm 28 of an actuating-lever 36, by means of which the clutch is put into engagement against its spring 16. The arm 35 of the lever 36 carries a brake block acting on the side of the member 12 to press it into contact with a stationary block 34 on a bracket 33. The lever 36 is connected by linkage 37, 38,



40 to a treadle, initial depression of which releases the brake and permits the wheel 12 to be turned by hand, complete depression putting the clutch into engagement. A coil spring 41 tends to hold the brake in action, as shown.

190,763. Sokal, S., (Maschinenwerke zu Frankfurt a Main, vorm. Kolb, Rieber, & Co., Ges.). Sept. 2, 1921.



Boot-sole sewing-machines; rotary horns; feed by dogs; presser-bar lifting devices.—In a machine for sewing turn-shoes a supporting-horn 79, and a feed-element 81, Fig. 2, are pivoted at 83, 82 respectively and can be swung together by a con-

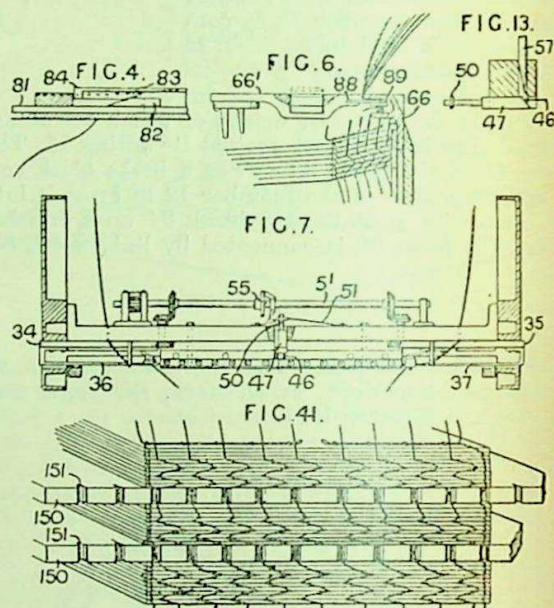
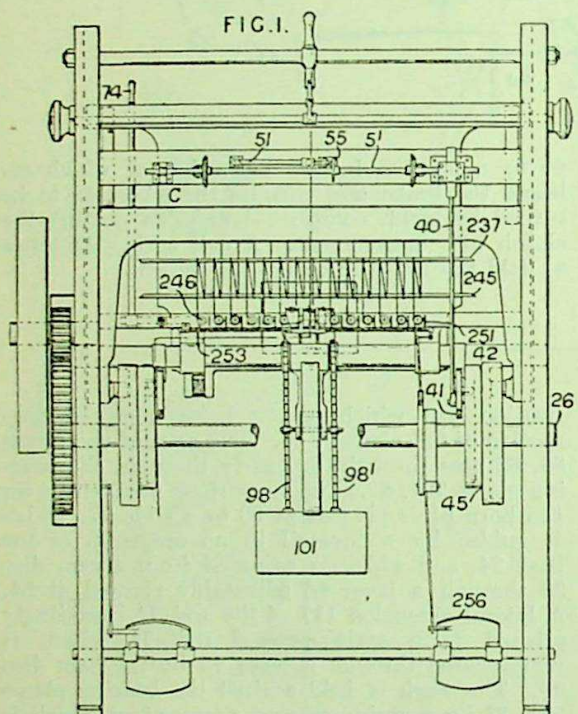
nection 118 which allows independent feeding motion of the element 81. The axes of the pivots 83, 82 pass through, or nearly through, the bearing plates 79a, 87. The supporting member 74 for the horn 81 is pivoted at 93 to a slide 77, which is guided by a dovetail in an apron 73 of the base 24, and which is actuated from a cam disc 38 through a lever 66 adjustably pivoted at 64. A lateral extension 117 of the rod 74 is slidingly pivoted to a spring-pressed rod 71 which is reciprocated through a lever 75 by the cam disc 38. The work is held against the bearing plates 79a, 87 by a spring-pressed presser-foot which is forked in the direction of feed. A vertically-adjustable ledge 79b is mounted on the support 79 for guiding the outer sole.

190,773. Reavis, W. E. Sept. 21, 1921.

Book-stitching machines.—In a machine for stitching book signatures comprising a set of punches and needles mounted on a reciprocating frame by the movement of which the signatures are penetrated alternately by the needles and the punches, a clamp-device is provided comprising gripping-plates engaging a thrust member and moved against frictional resistance therewith to keep up pressure of the thrust member on the signatures during the punching operation, whereas during the stitching operation a passive clamping pressure only is employed. Fingers are operated by the punching means so as to be forced between

the signatures to provide additional local support during the punching operation. Series of punches 19, Fig. 32, fixed in a bar 17 and of needles 24 carried by a bar 18 are mounted in a frame 15 reciprocated by a pair of cam-wheels 25 on a main shaft 26 engaging studs 27 projecting from the frame. Locking-threads for the stitches are provided by needles 36, 37, Fig. 7, laterally reciprocated by racks 34, 35 meshing with pinions driven by means comprising a cam 45 on the shaft 26, a lever 41 actuated by the cam, a rack bar 40 and gearing associated therewith. Loop-detaining means for the cross-threads comprise pins 46 on a slide 47, Figs. 7 and 13, which are retained by a latch 50 from being pressed forward by a spring 51 the latch being released by a lug 55 rotating with a shaft 51 forming part of the actuating

gearing for the locking-thread needles. The pins are reset by a plunger 57 in the punch bar engaging the beveled edge of the slide 47. Rollers on the racks 34, 35 carry lubricant for the punches. The threads are tensioned by an arrangement comprising a rod 245 supported by bars 244 actuated by a cam-operated lever 247, in conjunction with a set of tensions 246 which may be put out of operation by a number of fingers 251, Fig. 1, mounted on a rod 253 actuated through a lever and link from a pedal 256. A plate C supporting the clamping devices for the signatures is arranged to be swung outwardly about a fixed shaft 42 for access to the needles and when so moved the tension on the threads is removed by the movement of a rod 237 carried by bars 236 connected to the plate C by linkage

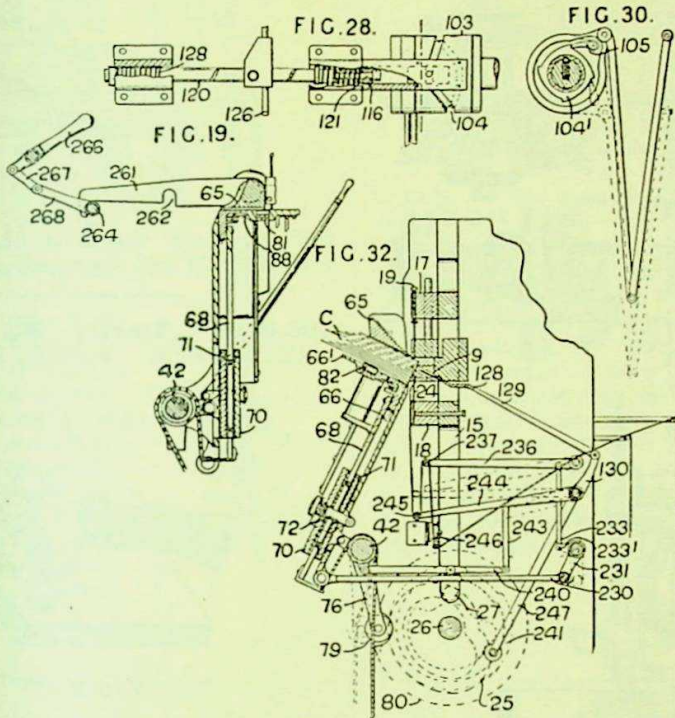


233¹, 233, -231, 230. The signatures are clamped between a clamp-head 65, Fig. 32, and a clamp-table 66 mounted on a plate 68 which is gripped between pressure plates 70, 71 to which pressure is applied by an eccentric and lever 74 and adjustable bolt 72. The plates 70, 71 are moved relatively to the plate 68 during the punching operation by a bell-crank lever 76, a roller 79 on which engages a cam 80 on the main shaft. A continuous pressure is thereby kept up on the signatures while the cam is effective. Local support for the signatures during the punching operation is provided by a series of tines formed in a head 128 and projected through openings in a frame bar 9 by bars 129 pivoted to levers 130 operated by a cam 241 through a lever 240 and link 243. Support is provided for the signatures at a distance from the back edges by an auxiliary table 66¹ hinged to the table 66 and provided with an adjustment to allow for the more rapid increase in thickness of the pile of signatures at the back

edge, this adjustment comprising ribbed wedges 82, 83, Fig. 4, moved relatively to alter the level of a bar 84 engaging the signatures by the progressive endwise movement of a bar 81, by a ramp at the side of the clamp plate, as the pile of signatures increases. A knife 88 secured to the edge of the table 66' co-operates with a knife 89 spring-mounted on the table 66 to cut and clamp the threads after a book has been sewn. The clamp table is raised to normal position by chains 98, 98' attached to a weight 101 and passing over pulleys on the shaft 42. The stitching is staggered and to effect this the signatures are placed by the operator against a stop 126 which is moved between the stitching operations into successive positions by mechanism comprising a ratchet-wheel 104' actuated by a ratchet 105 actuated by link connections from the sliding frame and communicating step-by-step motion to a cylinder 103 having a cam groove 104 therein engaged by a pin projecting from a

slide 116 which transmits endwise motion to a bar 120 carrying the stop 126 and controlled by springs 121, 128. The cam has four stages in two of which the signatures are positively moved by the movement of the stop, while in the other

two the stop moves away from the signatures which are pressed against it by the operator. A locking device for the plate C comprises arms 261, Fig. 19, projecting from the clamp head 65 having notches 262 for engagement by the



flattened ends of a rod 264 rotatable by a handle 266 and linkage 267, 268 to jam the flattened rod-ends in the notches. A number of books may be stitched in succession without severing the

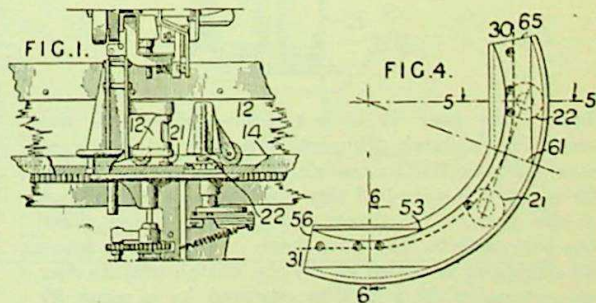
threads by interposing between the books plates 150 of any suitable material having apertures 151 for the punches and needles. Specification 117,798 is referred to.

190,821. **Droll, J. W., and Droll Patents Corporation.** Oct. 1, 1921.
Addition to 132,011.

Sewing padded edges of mattresses.

In a mattress-roll forming machine of the kind described in the parent Specification the stitching mechanism is provided with guide-rollers engaging double tracks so arranged that while traversing the corners of the table the working centre of the machine (i.e. the plane midway between the packing-needles) retains the same position relative to the edge of the mattress as during the traversing of the sides. The machine is carried by castors 12

running on a track 14 and provided with guide-rollers 21, 22 engaging lower and upper lateral flanges which constrain the castors to follow paths such that the line through their axes is always parallel to a tangent to the desired line on which the work is to be carried out and at the same distance therefrom. The upper roller 22, travelling in a counterclockwise direction continuing in a straight line to a point 53, Fig. 4, beyond the point where the curvature of the mattress edge begins and then travels in a circular



lar path to a point 65 beyond the point where the curvature of the mattress edge ceases. The lower roller 21 commences to travel in a circular path at the point 56 before the curvature of the mattress begins and commences to travel in a straight path at a point 61 before the curvature of the mattress ceases. The working line of the machine which coincides with the edge of the mattress is indicated in Fig. 4 by the line 30, 31 and the beginning and ending of the curvature are defined by the section lines 6, 6 and 5, 5.

190,822. Droll, J. W., and Droll Patents Corporation. Oct. 1, 1921.
Addition to 132,011.

Sewing padded edges of mattresses.—The machine described in the parent Specification is provided with means for automatically reducing its speed while rounding the corners of the mattress on which it operates. Mounted on the main shaft 23 which drives the packing and sewing and traversing mechanisms are gears 19, 28 meshing with gears 18, 27 fast on a counter shaft 17 driven by the motor

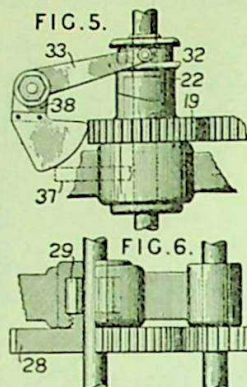
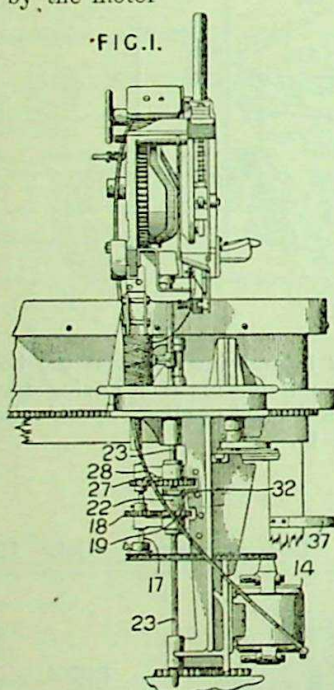


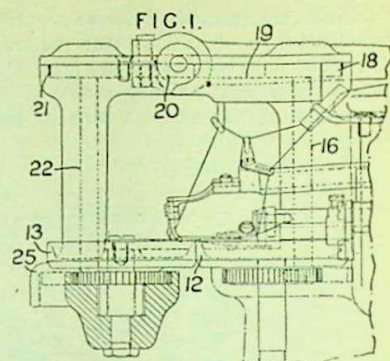
FIG. 1.



14. The gear 19 is normally clutched to the shaft by a clutch 22 while the gear 28 is operatively connected to the shaft by a ratchet device 29 when the speed of the shaft is reduced to that of the gear. To throw out the clutch and allow the low gear to function there is provided a lever 33 engaging a collar 32 on the clutch and having an extension 38 which is engaged by a ramp 37 at each corner of the work table, so that the clutch is held open while the corner is being turned.

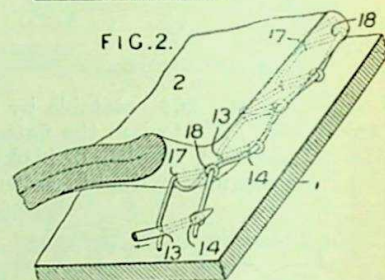
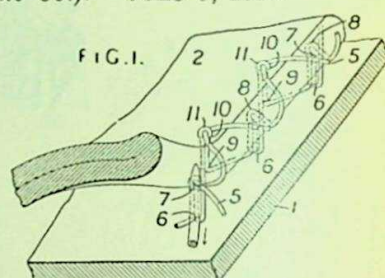
190,915. Singer Manufacturing Co., Ltd., Corral, H., and Heggie, J. Dec. 24, 1921.

Overhead sewing-machines.—In a sewing-machine of the scale-pan type, the outer feed-cup 13 is supported in a bracket 25 pivoted in its upper part to the main frame. The cup is driven



positively from the drive of the other cup 12 by shafts 16, 22 and spur-gearing 18, 19, 20, 21.

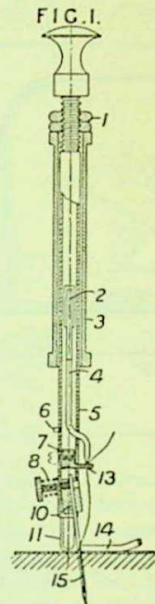
190,978. Imrie, H., (Arbetter Felling Machine Co.). June 6, 1922.



Stitches and seams.—Two layers of material are connected together by a blind-stitched seam in which a thread is disposed in two series of parallel loops each at an angle to the edge of the superposed layer. One series enters and emerges from the upper surface of the main layer and extends beneath the surface of the upper layer, and the two series are concatenated by an additional thread. In the arrangement of loops shown in Fig. 1, which is intended for production by a machine having a curved laterally-jagged needle moving in its penetrative stroke inwards of the upper layer, the needle alternately enters the lower layer 1 at 6 and emerges at 7 producing a loop 8, and then enters the lower surface of the layer 2 at 9 and emerges at 10 producing a loop 11, the loops 8 and 11 being concatenated by a thread 5. In Fig. 2 a needle is shown moving outward from the work, and while entering and leaving the layer 1 as before at 13, 14, it enters and leaves the lower side only or the lower side and edge of the layer 2 as at 17, 18. The relative tensions of the concatenating and main threads may be adjusted so as to roll over the edge of the upper layer and to conceal the line of stitching.

191,018. Dumortier, A. Dec. 16, 1921,
[Convention date]. Void [Published under
Sect. 91 of the Act].

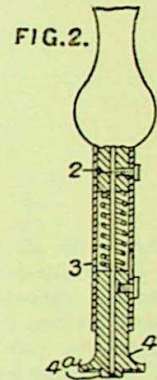
Hand sewing - tools. — A hand-embroidery tool comprises a tube 3 with extensions 11 terminating in feet 14. In the tube 3 slides a tube 5, on the upper end of which is a nut 1 for regulating in conjunction with the stop 6, the travel of the tube 5. A needle 15 is fixed in a socket which is pivoted at 10 to the tube 5. The pivot-pin 10 works between the extensions 11 to prevent rotation of the tube 5. A thread-gripper 4 to which is fastened a V-shaped spring 2 coacts with an orifice 13 in a block 7 fixed in the tube 5 when the needle is forced through the material. The feet 14 move forward owing to the obliquity of the needle. On the ascent of the needle, the feet 14 remain firm, while the needle moves towards the vertical against a



spring 8 until it leaves the material, when it assumes its original obliquity in readiness for the next stitch. The thread passes freely through the orifice 13 during the descent of the needle, but is gripped therein during the return movement.

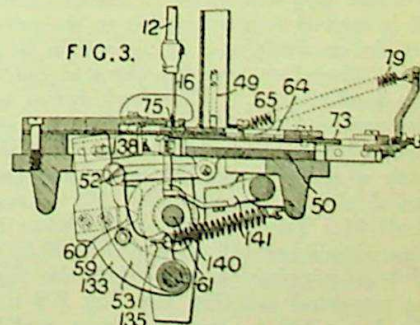
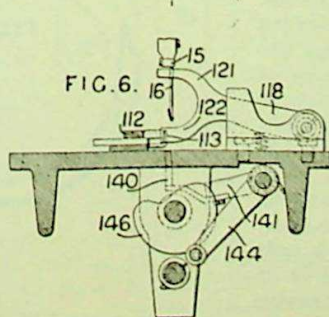
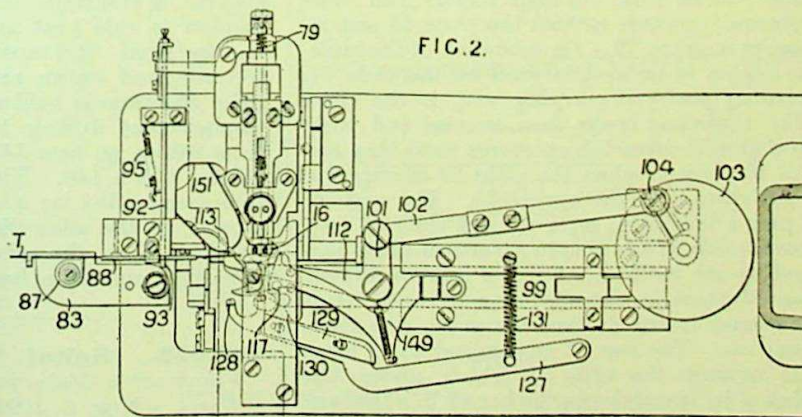
**191,146. Blakeman, J., and British
Boot, Shoe, & Allied Trades Re-
search Association.** Oct. 5, 1921.

Awls. — The assembling or registering points in the parts of boot and shoe uppers, clothing, upholstery harness or the like are marked from templates, in which the points are represented by circular holes, by means of an awl 2 sliding within a spring-pressed presser-plate 4 having a circular projection 4^a of a size to correspond with the holes in the template. A tube 3 fixed to the handle telescopes upon the part 4.

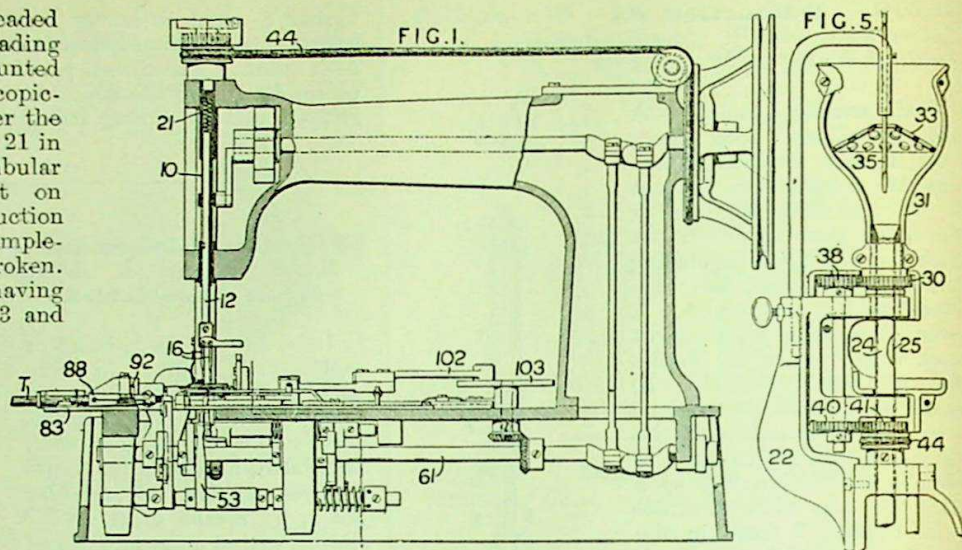


191,182. Fairweather, W., (Singer Manufacturing Co.). Oct. 12, 1921.

Threading short lengths of tape into buttons. — A machine for inserting short lengths of tape into buttons &c. to facilitate the subsequent attachment thereof comprises (1) a hopper having a rotary shoot to deliver the articles in a position in which their perforations are engaged by pins, (2) threading hooks which, after movement of the article into threading position, enter the perforations displacing the pins and subsequently draw tape through the perforations, (3) a tape feeding device inoperative when no article is in position or if its apertures are not correctly aligned, (4), a knife for severing lengths of tape, and (5) ejecting means for dis-



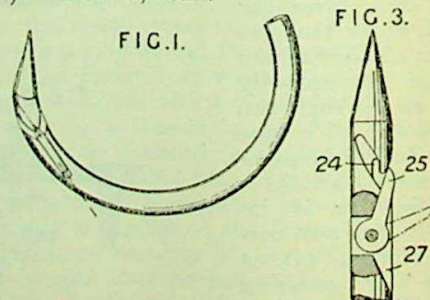
charging the threaded articles. Threading hooks 16 are mounted on a bar 12 telescopically mounted under the control of a spring 21 in a reciprocated tubular bar 10 so that on meeting an obstruction the threading implement is not broken. A hopper 31 having an article sieve 33 and



stirrer 35 is rotatably mounted together with a lower shoot-section in a bracket 22 which is readily removable from the machine frame. A fixed section 24 of the shoot is provided with an inspection slot 25. A spring 49 at the lower end of the shoot has sufficient frictional engagement with the descending buttons to rotate them until their perforations are aligned with pins 75 on a slide 73. The hopper and shoot are rotated by a belt 44 and gearing 40, 41, 38, 30. A button is delivered by the shoot upon a fixed slotted plate 65 through the slot in which the pins 75 project to engage the perforations. A slotted feed-plate 64 shaped to the contour of the buttons over-lies the plate 65 and is secured to a slide 50 actuated by a link 52, rock-arm 53, roller 59 and cam 60 from a shaft 61 driven from the main shaft. The slide 73 is pressed upwards against the plate 65 and to the rear by a spring 79. On actuation of the slide 50 the button is pressed forward by the slide 64 to threading position, carrying with it the slide 73. The threading hooks then descend and push back the pins 75 from the apertures until they are clear of the button when the slide 73 is immediately withdrawn by the spring 79. The tape T is led past a tension 87 on a pivoted plate 83 into a pivoted guide 88 movable in a vertical plane and engaged by the inclined jaws of a fork 93 formed on a bar 92 which is controlled by a spring 95 tending to retract it and depress the guide into feeding position. The bar 92 is engaged by a lever bearing against the slide 73 which under the restraint of its spring keeps the bar 92 in a forward position and the guide 88 raised unless the slide 73 is moved forward owing to the presence of an article on its pins. If no article is present the guide therefore remains elevated out of range of the feed device. The feed device comprises a two-armed lever 101, 112, Fig. 2, mounted on a slide 99 and connected by an adjustable link 102 with a slide block 104 adjustably secured in a radial slot in a crank-disc 103 driven from the shaft 61. The free end of the lever 112 co-operates with a lug 113 on the slide 99 to form a pair of tape-gripping jaws. When the plate 99 is in its retracted position the link 102 first operates the lever 112 to open the jaws, and then on the

contact of the lever with a pin 117 the slide 99 is moved forward to tape-engaging position. In the return movement the jaws are first closed on the tape. To prevent feed of the tape if the apertures of the button are incorrectly aligned there is provided a spring-controlled lever 118, Fig. 6, an upper arm 121 of which is engaged by a projection 15 on the needle-bar, a lower arm 122 lying in the path of the jaw 112 of the feed device. If the needle-bar does not descend, so that the lever 118 remains elevated the presence of the part 122 in the path of the jaw causes the latter to be opened to release the tape. Fingers 128 on an arm 127 controlled by a spring 131 are arranged so as to press the tape against the shanks of the threading implements when the slide 99 is actuated to a sufficient extent to allow a cam 130 thereon to ride past a cam 129 on the arm 127. The sections of tape are severed by a knife 138 mounted on an arm 133 actuated by a cam 135. The tape is held against a button to prevent displacement during threading by a finger 140 mounted on an arm 141 actuated through a lever 144 by a cam 146. Threaded buttons are ejected into a shoot 151 by a spring controlled lever 149 pivoted on the slide 99 and engaging the button to eject it on the advance of the slide after a threading operation has been completed.

192,023. Sokal, S., (*Maschinenwerke zu Frankfurt a Main vorm. Kolb, Reiber, & Co. Ges.*). Nov. 5, 1921.



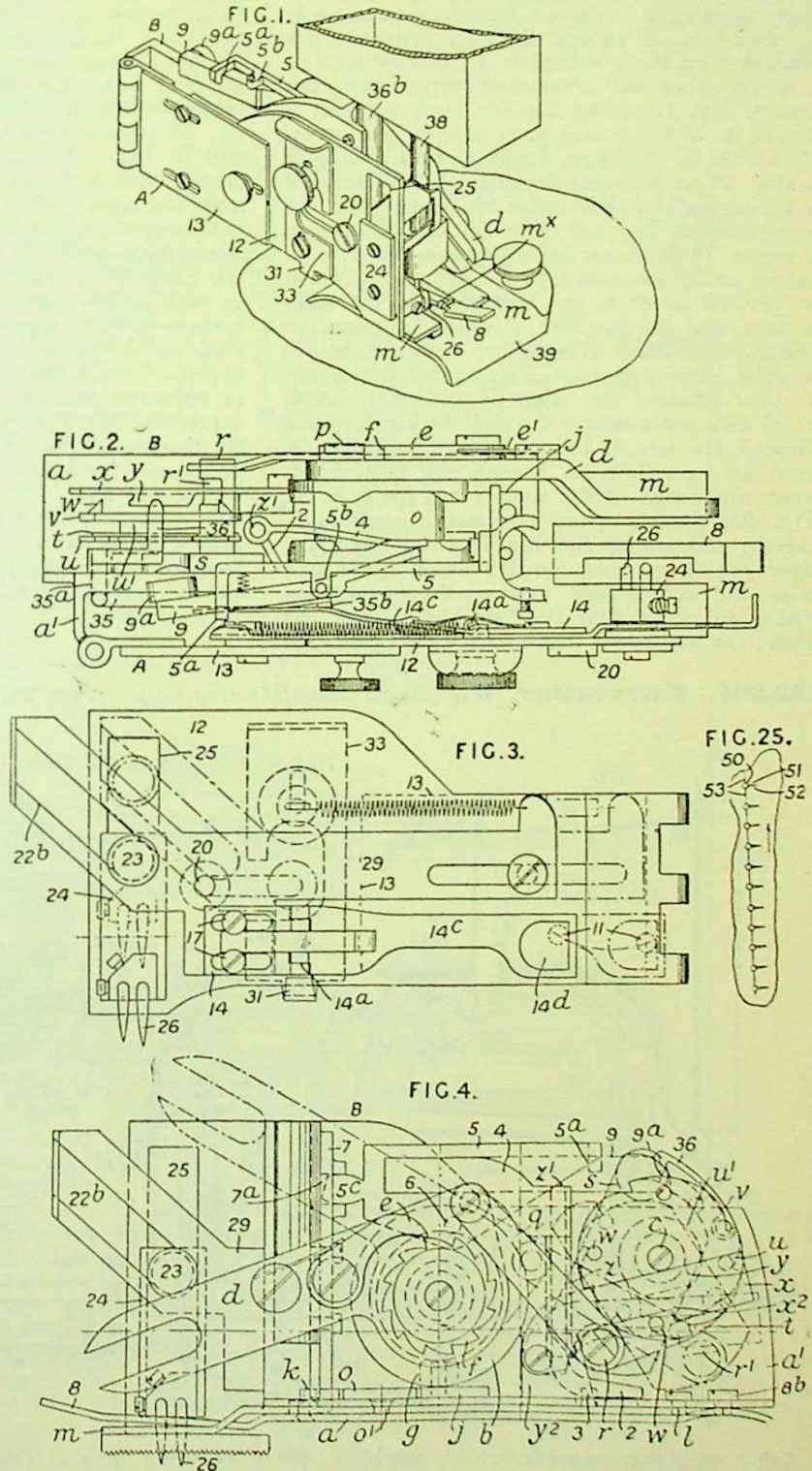
Sewing-machine needles. — A curved hooked

needle especially applicable for use in machines as described in Specification 189,331 for sewing turned feet shoes, is formed with a pivoted latch 25 which is moved as the needle is withdrawn from the work to cover the hook-slot 24 and pre-

vent the hook from catching in the fibres of the work. As the needle penetrates the work, the latch is moved back to lie in a recess 27. Specifications 7121/89 and 24802/96 are referred to.

192,833. Hickey, J. Nov. 23, 1921.

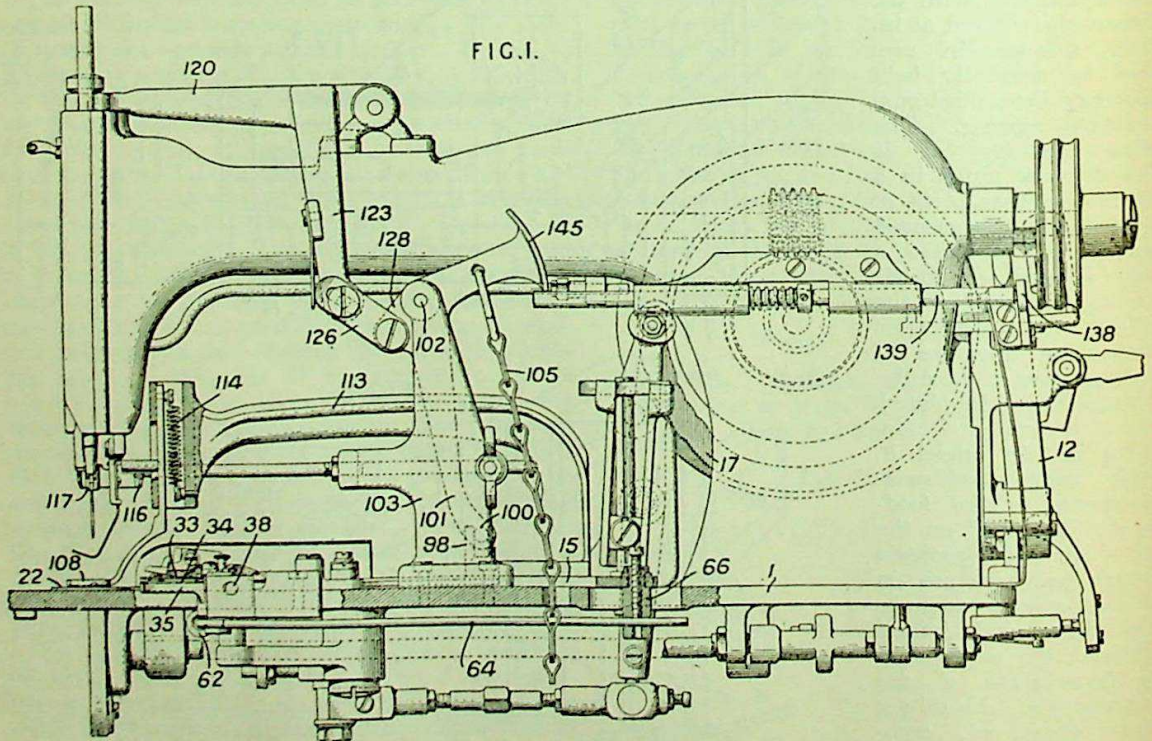
Hem-stitching machines.—A hem-stitching attachment A, B, Fig. 1, for making the cycle of stitches 53, 51, 52, Fig. 25, is supported by the presser-bar 36 of a household sewing-machine and comprises a piercer 26, a feed-dog *m*, giving side-wise and forward movement to the work, and means actuated by the reciprocating needle-bar 38, for operating the said parts. A bridge-plate 39, having pierced apertures with a strengthening lug between them, masks the ordinary feed-dog of the machine. A forked arm *d*, oscillated by a set-screw on the needle-bar 38, is pivoted on a shoulder of a cam-wheel *b*, Fig. 4, to which is fixed a ratchet-wheel *f*. A spring-pressed pawl *e*, pivoted on the lever *d*, engages with the ratchet-wheel *f* and at intervals rotates the cam wheel *b*, normally held stationary by an internal coiled spring. The forked feed-dog *m* is pivoted by a pin *l* in a slot in the base-plate *a*. A block *o* in the grooved face of which slides a plate *j* pivoted at *k* to the base *a*, is pivoted to the feed-bar at *o'*, and passes through an aperture in the base-plate *a*. A roller *g*, journaled in the plate *j*, bears in a peripheral cam-groove in the wheel *b*, which imparts sidewise movements to the feed-bar *m*. A lug *y*² on the feed-bar *m* projects through an aperture in the base *a* so as to have longitudinal and lateral motion. On a pin *c* in the frame-plate *a'* are journaled a duplex ratchet-wheel *u*¹, comprising ratchets *u*, *v*, of twelve and four teeth



respectively, and a cam-plate *s*, pivoted by a pin *r* to a link *q*, which connects it to the arm *d*. A spring-pressed pawl *t*, pivoted at *r*, engages with and intermittently gives one-twelfth of a revolution to the ratchet-wheel *u*¹. An arm *x*, pivoted to the lug *y*² has a lateral toe *y* and a notch *x*² for engaging in turn with pins *w* on the wheel *u*¹ and a slot *r*¹ in the pin *r*. The notch *x*² engages with the pin *r* at every third stitch to give a forward movement to the feed-bar. A vertical shaft *z*¹, journaled in a bracket *z* on the frame-plate *a*¹, carries arms 4, 2, at its upper and lower ends respectively. An arm 9, Fig. 1, having a roller 9^a at one end, is hinged at 5^b to an arm 5, pivoted to the frame-plate *a*¹ at 6. The arm 9 normally contacts with a stop 5^a on the arm 5 under the influence of a spring so that the roller 9^a is not over the cam-plate *s*. The end 5^c of the arm 5 bears in a recess 7^a in a vertically-movable bar 7, connected at its lower end to a lever-arm 8, which is pivoted at 8^b to the underside of the base-plate *a*, and the free end of which bears on the bridge-plate 39. When the feed-bar moves forward, a pin 3 thereon, Fig. 4, strikes the arm 2, thus rotating the shaft *z*¹ and the arm 4, which swings the arm 9, the end of which projects through the arm 5, Fig. 1, to bring its roller 9^a over the cam-plate *s*. During the next downward movement of the needle into the hole 50, Fig. 25, the cam-plate *s* tilts the arms 9, 5, thereby depressing the bar 7; this causes the lever-arm 8 to press on the bridge-plate and raise the attachment against the presser-bar spring so as to clear the feed-bar *m* from the work; the feed-bar is then drawn back by contact

of the pin *r* with the lug *y*² on the feed-bar. The grooved piercer 26 is clamped to a piercer-head 24, sliding in a vertical slot 25 in a plate 12, which is adjustably fixed to a hinged plate 13, Fig. 1. A spring-controlled reciprocable plate 29, Fig. 3, slidably supported on the plate 12, has an inclined slot 22^b in which bears a roller 23 on the piercer-head 24. A spring-pressed element 14^c having an eye 14^d is hinged at 14^a to a stirrup 14, adjustably fixed at 17 to the plate 29. A spring-controlled arm 35, Fig. 2, pivoted to the frame-plate *a*¹ at 35^a, has a dog 36, Fig. 4, at one end, which contacts with the ratchet-wheel *v*. Once in each cycle, when the dog 36 is in a notch, a toe 35^b on the arm 35 will be below the stirrup 14^c, which can then engage with a pin 11 on the cam-plate *s*, coaxial with the pin *r*; when not in a notch, the toe 35^b will bear against the stirrup and hold it out of engagement with the pin 11, which thus actuates the plate 29 to reciprocate the piercer 26 once in each cycle. A latch-plate 33, Fig. 1, has a hooked end 31, adapted to engage a slot in the feed-bar *m* and so lock the groups A, B in co-operative positions. The plate 29 can be locked in retracted position with the piercer raised by depressing the plate 33, which engages the pin 20 thereon. The depression of the plate 33 disengages the hooked end thereof from the feed-bar *m* and allows the part A to be swung open. The tongue *y* may be adjustably fixed to the arm *x* to permit of variation of the feed. The feed-bar *m* is provided with an eye *m*^x, Fig. 1, through which a cord, to be stitched to the work, may be fed.

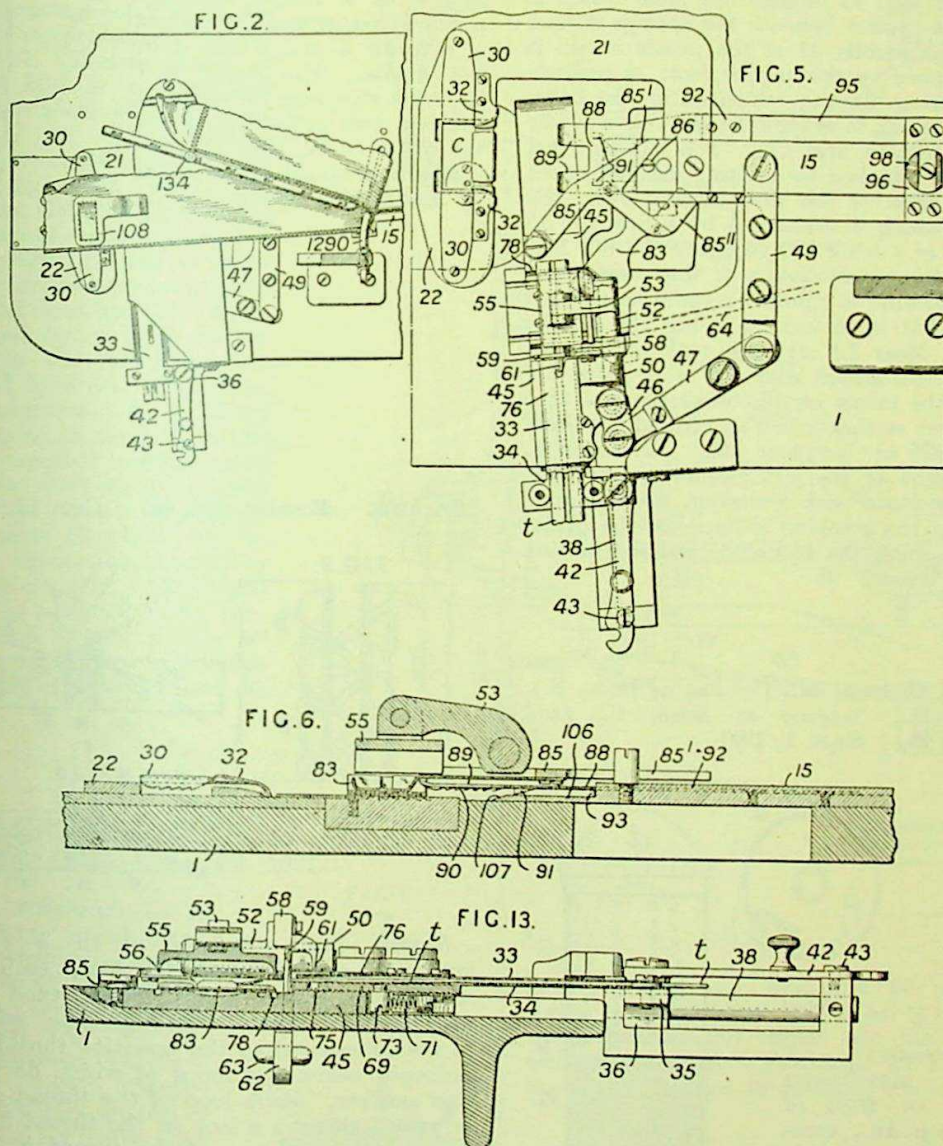
192,904. Fairweather, W., (Singer Manufacturing Co.). Jan. 26, 1922.



Label-attaching machines.—A machine for sewing on labels is provided with means for severing a label from a strip, feeding it from severing position to stitching position, and means

for folding the ends before stitching. In the application of the device to a machine of known general type, a supporting bar 15 is moved lengthwise and laterally to stitch round a label by known connections with cam grooves in a feed-wheel 17 and carries an extension 21, 22 in which is a label-receiving cavity *c*, Fig. 5. The label is retained in the cavity by light springs 30 and adjacent thereto are folding-scrolls 32. The label-supplying tape *t* passes between spring blades 33, 34 secured to an arm

35 projecting from a block 36 sliding on a fixed guide rod 38, Fig. 13, and capable of being locked by a latch-bar 42 notched to engage a stud 43. A feed-slide 45 aligned with the spring blades 33, 34 and moving in a slot in the bed 1 is connected by a link 46 to a lever 47 pivoted on the bed and connected by a link 49 to the bar 15. A three-armed lever 52 is pivotally mounted in a lug 50 on the slide 45, one arbor 53 having pivoted thereto a label gripper 55 with thin toes 56. Another arm 58 carries a knife 59 and

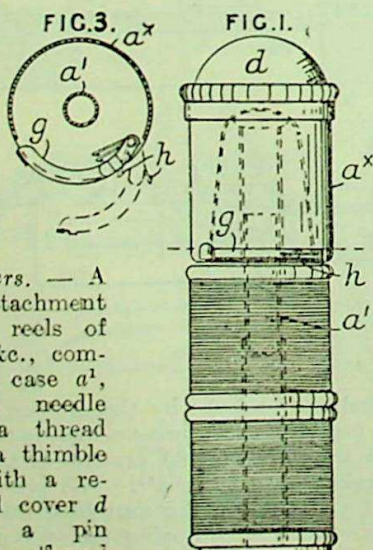


piercing-pin 61. The third arm 62 extends downwardly and is engaged by the hooked end 63 of a rod 64 secured at its other end in a lug 66 projecting from the bar 15 by the lengthwise motion of which the three-armed lever is operated. A ledger blade 69 having a hole 75 for the pin 61 coacts with the knife and is slidably mounted on the slide 45 under the control of a spring 71 acting on a stud 73. A cover plate 76 overlies the ledger blade, space being left for the springs 33, 34. Grooves 78 in the feed-slide receive the jaws of the gripper. To control the

label after release by the gripper foot, a retainer is provided comprising a light spring 83 mounted on a forked arm 85 pivoted to the slide 45 and having jaws 85¹, 85¹¹. The jaw 85¹ is engaged by a pin 86 on the arm 15 when a new label is being fed, thus moving the spring 83 away from the gripper foot. When the feed-slide is advanced the pin 86 engages the jaw 85¹¹ and moves the spring 83 between the toes of the foot and over the label. The label is moved from the advanced feed-slide to the cavity *c* by a pusher 88 having toes 89 with serrated edges 90

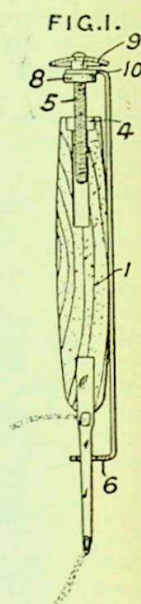
and label-engaging lugs 91. Arms 92 of the pusher embrace the bar 15 and are secured to bars 95 connected by a cross member 96 carrying a pivotally-mounted post 98 slotted to receive a pin 100 carried by an arm 101 of a three-armed lever pivoted at 102 to a fixed post 103 and actuated by a treadle-chain 105. The bar 15 is recessed at 106 to provide a support for the flange 93 of the pusher which supports the toes 89 above the label. As the pusher is advanced the flange 93 rides down a slope 107 and the serrations 90 and lugs 91 engage the label which is thrust by the pusher beneath the springs 30 and folded by the scrolls 32 at the points where it has been creased by the gripper foot. A presser-foot 108 having flanges which enter the label cavity is depressed to engage the label by a spring 114 mounted in an arm 113. The foot is lifted by a bar 116 attached to a lifting-rod 117 raised by the actuation of the three-armed lever, the arm 123 of which is connected by a link 126 to the arm 123 of a lever 120 engaging the rod 117. To prevent the manipulation of the presser-foot while the machine is running a spring-controlled locking-rod 139 is moved by a lug 138 on the stop motion lever 12 into the path of a sector 145 on the three-armed lever. A work gauge for positioning the labels on the work consists of a rod 1290, bent as shown in Fig. 2, graduated and provided with an indicator 134. In order to allow repetition of the stitching of a label, the lever 42 is engaged with a stud on the feed-slide so that when the machine is operated the blades 33, 34 move with the feed-slide and the feeding of the tape ceases.

193,443. Cohen, N., (trading as Rose, N.),
Cohen, S., (trading as Rose, S.), and
Romoff, B. Sept. 1, 1921.



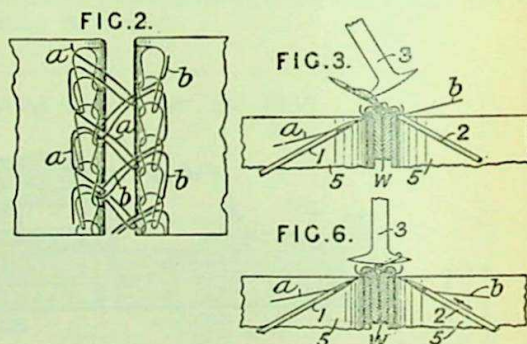
Needle-threaders. — A device for attachment to bobbins or reels of sewing cotton &c., comprises a needle case a' , one or more needle threaders h , a thread cutter g , and a thimble container a'' with a removable padded cover d which forms a pin cushion. The thread cutter g is in the form of a curved blade pivotally mounted so as to lie normally within the periphery of the bobbin head. The needle threaders h may be mounted upon the cutter g .

194,243. Clarke, E., Clarke, A., and Clarke, A. Oct. 18, 1922.



Hand sewing-tools. — The stop 6 of a hollow tufting-needle is positioned by means of a screw 5 and a nut 4 in the handle. The upper end 10 of the stop may be engaged between two collars 8, 9 on the screw or be kept in contact with a single outer collar by means of a spring.

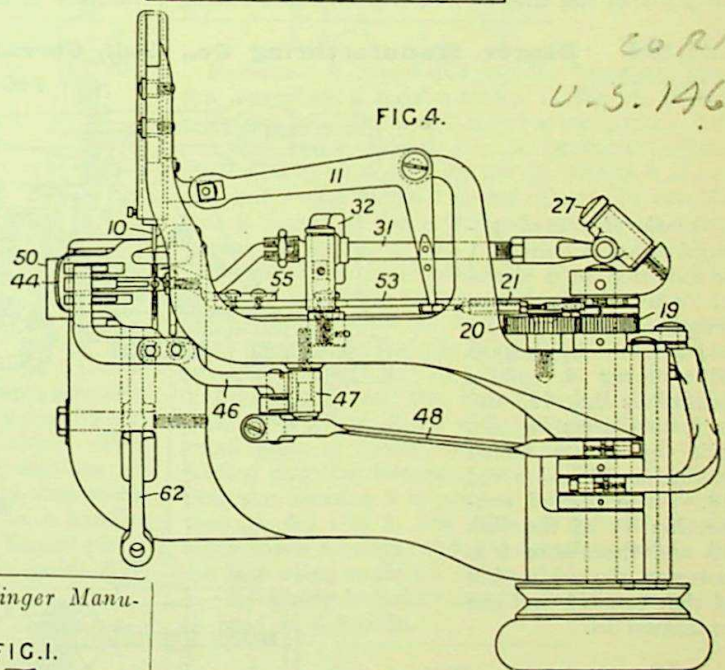
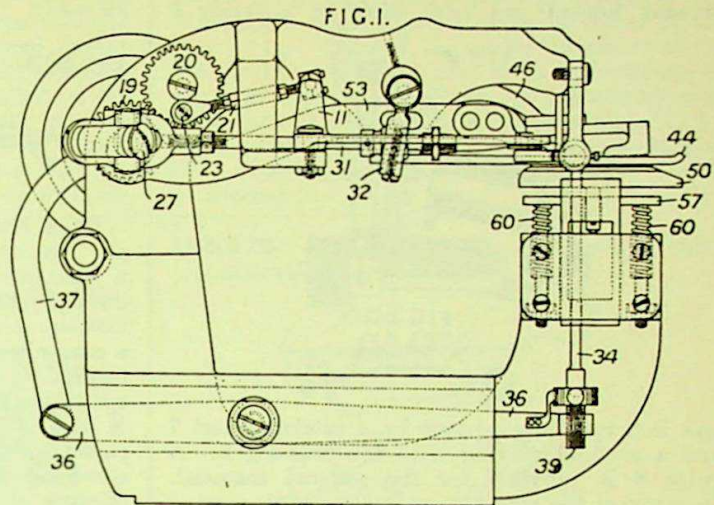
194,408. Esche, M. S. Dec. 12, 1921.



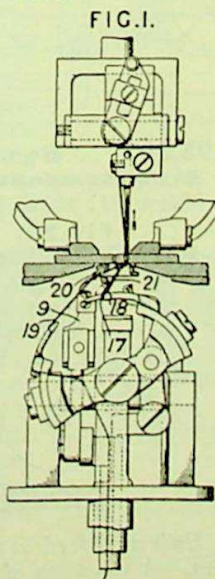
Seams; loop-stitching. — In a seam for knitted materials and the like, each selvage is stitched into by a thread, each loop of which, after passing through the selvage, is in turn presented to the opposite thread to form a looped seam, the loops of which do not cross one another. Each loop of the thread a , Fig. 2, is passed through a loop in the thread b and surrounds the next loop of the thread b . The selvages W , Fig. 3, are fed between presser cylinders 5. A needle 2 is passed through one selvage and through a loop in the thread a carried by a needle 1 and held by a double-sided looper 3, Fig. 6. The looper then drops the said loop and enters the loop formed in the thread b on the return of the needle 2. The material is fed forward and the needle 1 moves upwards through the loop in the thread b . The looper then releases the thread b and enters the loop thrown in the thread a in readiness for the next cycle of operations.

194,436. **Bellow, A.** Dec. 21, 1921.*Blind-stitching machines.*

—The work is pressed up to the under face of a fixed plate 44 by a spring-supported work-plate 50 and is ridged for the passage of the needle by a reciprocating work-bender 34. The needle 10 is straight and is reciprocated above the plate 44 by a lever 11, rod 21 of adjustable length, a crank-pin 23 and gear wheels 19, 20. The looper-bar 31 is supported by a spherical bearing in a pivoted arm 32 and is actuated by an oblique crank-pin 27. The feed-bar 46, 48 is supported by a link pivoted at 47 to the frame and is actuated by direct connection to an eccentric. An auxiliary feed-dog 55 is secured at the end of another eccentric-rod 53. The work-plate 50 rests on springs placed between it and a table 57 which can be lowered against springs 60 by a treadle-lever 62. The work-bender is actuated by a connecting-rod 37 and a lever 36 and its position is adjustable by means of screwed part 39.

194,537. **Fairweather, W.,** (Singer Manufacturing Co.). March 8, 1922.

Loop-stitching. — In overseaming stitch-forming mechanism, means are provided for bending the looper and the last stitch towards the plane of the work, thereby facilitating the setting of the purl close to the edge of the seam. In the button-hole sewing-machine described in Specification 179,278, the loop-detainer 9, Fig. 1, is formed with a horn 20 having a point 21 projecting forwardly beyond and over the loop-seizing horn 18 of the detainer 9. When the looper 18 enters the depth-stitch needle.

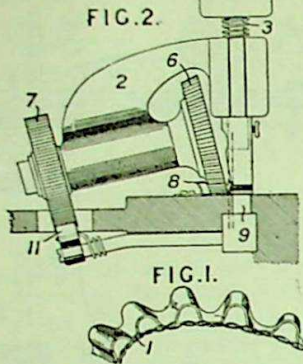


loop 17 as shown, the horn 20 passes below looper-thread 19 and lifts it so that the subsequent pull on this thread sets the purl on the button-hole edge. The horn 20 also prevents the detaining-horn 18 catching the looper-thread.

194,696. **Tilliard, P. A. H.** March 11, 1922, [Convention date].

Embroidery; feed by wheels. — A goffered strip of fabric is strengthened by a binding 1, Fig. 1, stitched into each undulation of the fabric. A fabric edging may also be stitched to the goffered fabric. The cord may be the intertwined threads of a lock-stitch sewing-machine and may be applied in a machine having a laterally-vibrating needle, Fig. 2, and a feed-wheel 6 having teeth corresponding to the shape and size of the

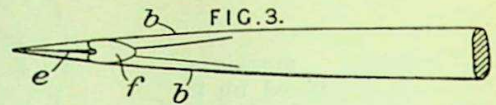
goffering. The wheel is carried by a frame 2 pressed toward the work plate by a spring 3



and is turned step-by-step by a ratchet wheel 7 and a pawl 11 moving with the feed-dog 9. A guide 8 is provided for the goffered material. In place of the wheel 6, an endless chain having

projections shaped to engage the goffering may be used.

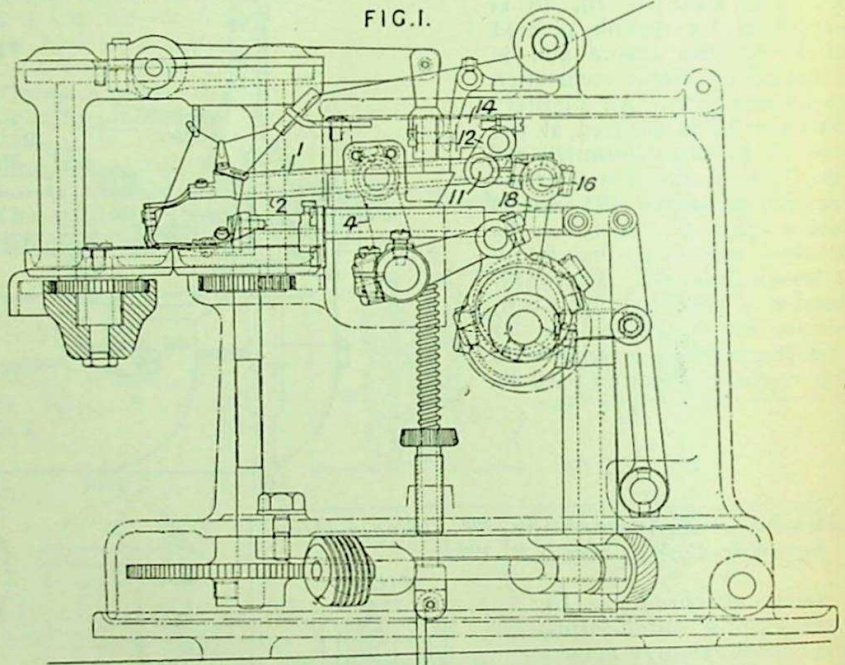
194,816. Fox, W. E. Dec. 22, 1921.



Hand sewing-tools.—A sewing-tool for leather and like material has a chisel-shaped end *e* and a transverse slot *f* adapted to draw the thread through the work when the awl is withdrawn. The slot *f* has smooth edges, curved sides, and a semi-circular inner end. The awl is gradually tapered from intermediate the handle and the eye to the end *e*. To form the slot, a slight notch is filed in the blade edge, and the slot is completed by sawing backwards and forwards within the notch with a strong thread, coated with a mixture of finely powdered bath-brick and oil.

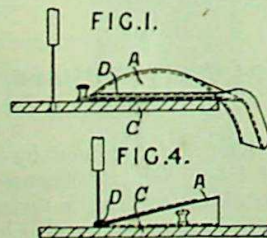
195,164. Singer Manufacturing Co., Ltd., Corral, H., and Heggie, J. Dec. 24, 1921.

Overhead sewing machines.—A looper 1 is mounted in a sleeve 2, which is given lengthwise and tilting movements by means of a lever 4 and a pendulous link 12, and is turned upon its own axis by a ball-ended extension 16 and a rod 18. The pivotal connection 11 of the link 12 and the sleeve 2 is between the connection of the lever 14 and the extension 16.

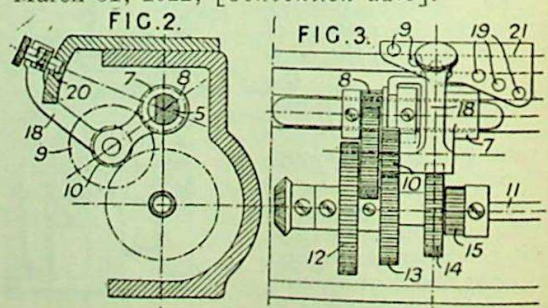


195,255. Gill, P. J. March 13, 1922.

Sewing machines; work-guides.—A work-guide particularly suitable for lace &c. is formed of a sheet of metal A stamped to a domed or convex form and set at an inclination to the machine table C so that material fed transversely to this inclination will tend to move down so as to abut against a returned edge or flange D.



195,587. Soc. Anon. des Anciens Etablissements R. Cornely et Cie. March 31, 1922, [Convention date].



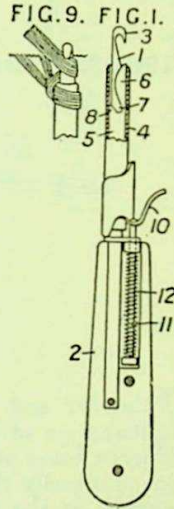
Universal-feed sewing-machines; cords, attaching.—A machine of the kind employing a rotary

cord carrier which is rotated around the needle for producing corded embroidery is provided with change-speed mechanism of known type whereby the number of turns taken by the cord carrier in each stitch may be varied. In the arrangement shown a sliding carriage 7 mounted on the main shaft 5 carries in known manner a gear-wheel 8 splined to the shaft and two idle wheels 9, 10, rotating together. Six different speeds are obtained by moving the carriage so as to bring

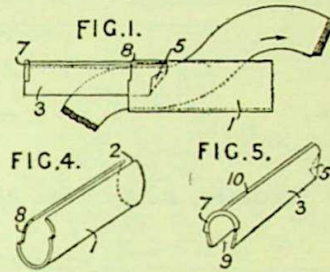
the pinions 9 or 10 into engagement with pinions 12 - - 15 mounted on a shaft 11 geared to the cord carrier, the pinion 9 engaging either of the pinions 13 - - 15 and the pinion 10 either of the pinions 12 - - 14. An arm 18 on the carriage is provided with a spring pin 20 for engagement with one of a series of holes 19 in a plate 21 for locking the carriage in position for the engagement of the selected gears. Specification 212/76 is referred to.

195,889. Mackay, D. R. May 29, 1922.

Knot-tying devices.—A device for knotting the fringes formed by the loose ends of warp and weft threads of carpets or other fabrics comprises a hook 3 over the shank 1 of which slides a casing 4. Bundles of loose thread-ends are wound round the end of the casing and under the hook, as in Fig 9, the casing is moved so as to clamp the free ends of thread between itself and the hook, and then the looped part of the threads is slipped off over the hook and the free ends drawn through the loop. The casing may have secured therein frictionally a split sleeve 5, with a longitudinal curved lip 6 of trough shape, a recess 7 and a shoulder 8 so as to form a narrowing space into which the threads are gathered. The sleeve may be formed of various dimensions to suit different kinds of work, or may be dispensed with. The hook is rigidly mounted on a handle 2, and the casing is actuated by a finger piece 10 against a spring 12 surrounding a guide rod 11.



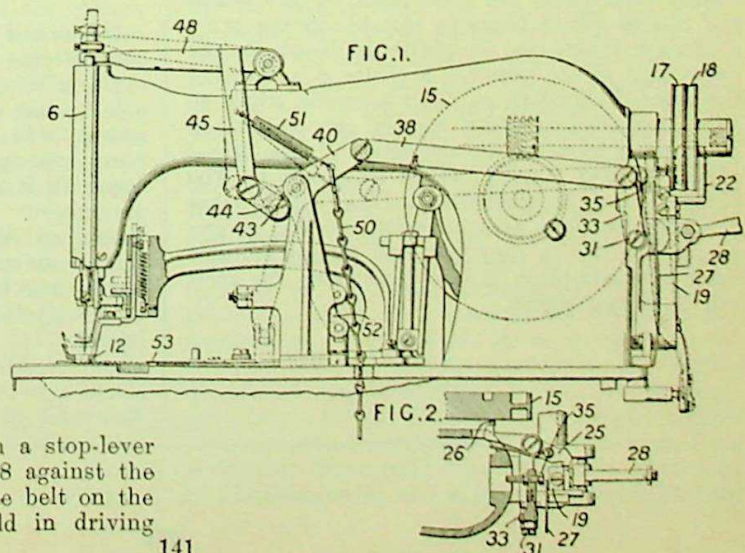
195,970. Chasselon, R. L. April 8, 1922, [Convention date].



Bodkins.—A removable tag for laces, ribbons, &c. comprises a body member 1, Fig. 4, having a longitudinal slot 2 and a cut-away portion 8 at one end, and a slide 3, Fig. 5, having a longitudinal slot 9, a longitudinal rib 10, points 5 at one end and a stop flange 7 at the other. In use the lace is placed in the member 1 with its end projecting as shown in Fig. 1, and the points 5 of the slide 3 are inserted in the lace end. The lace is then pulled and the slide 3 is drawn into the member 1 until the flange 7 fits into the cut-away portion 8, the rib 10 guiding the slide by engaging the slot 2. To remove the tag the slide is drawn out and the lace detached from the points. The end of the slide may be closed by a small plate or cone. The rib 10 and cut-away portion may be dispensed with. In a modification, the member 3 is pressed into the member 1 through the slot 2, the sides of the member 1 being made springy, and the securing points for the lace being made on either of the members 1, 3. By giving sufficient length to the tag it may be used as a bodkin.

196,389. Fairweather, W., (Singer Manufacturing Co.). Jan. 24, 1922.

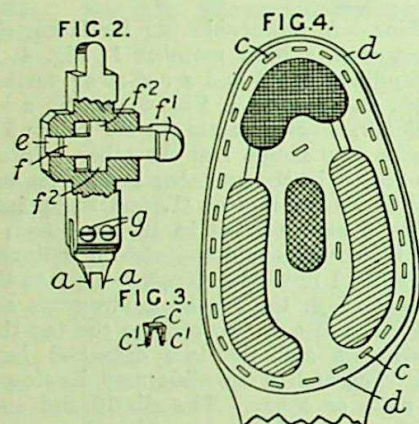
Starting and stopping gear.—Power-operated sewing machines are provided with starting and stopping means having interlocking devices whereby starting is prevented while a work-clamp, presser-foot, &c. is displaced from sewing position and accidental displacement of such part is prevented when the machine is running. In the application to a label-cutting and sewing machine, a presser-bar 6 co-operates with a clamp-foot 12 and a feed-slide 53. The main shaft carries fast and loose pulleys 17, 18 associated with a belt-shipper 22 mounted on a stop-lever 19 manually operated by a lever 28 against the pressure of a spring 27 to throw the belt on the fast pulley. The stop-lever is held in driving



position by a spring latch 25, which is released to effect the stoppage of the machine by a lug 26 on the pattern-wheel 15. A stop-arm 33, pivoted at 31, carries in a lateral extension a stop-screw 35, which lies in the path of the lever 19. The arm 33 is connected by a link 38 to one arm 40 of a three-armed lever, another arm 43 of which is connected by a link 44 to a lever 45, 48 engaging the presser-bar 6. A spring 51 tends to hold the lever 45, 48 in the position corresponding to the stitching position of the presser-bar. The

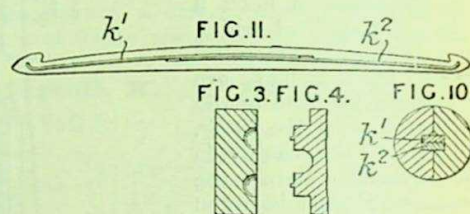
lever may be moved to lift the presser-bar when the machine is not running by a chain 50, by which the toggle 38, 40 is straightened, the stop screw 35 being consequently moved to prevent the inward motion of the stop-lever 19 to start the machine. When the machine is running, the lever 19 is locked in position to prevent the movement of the arm 33 and the lifting of the presser-bar. The feed-slide 53 is controlled through connection with the third arm 52 of the lever.

196,703. Crozier, A. A. Jan. 31, 1922.



Awls.—A device for setting thin-backed staples *c*, Figs. 3 and 4, into a feather-edged, rubber protector *d* so as to penetrate a hard leather sole, consists of twin piercing-punches *a*, Fig. 2, shorter in length and of less gauge than the legs *c¹* of the staples employed. The staples are readily inserted in the holes made by the punch and can be driven home by suitable means or by a plunger *f* arranged crosswise as shown in the upper part of the punch. A cavity *e* is made of the same dimensions as the top of the staple so that partially-projecting staples can be driven home by a blow on the projection *f¹*, the travel of the plunger *f* being limited by a stop *f²*. The plunger *f* may be magnetized. The twin punches *a*, *a* may be made detachable by releasing screws *g*, *g*. The device may be fitted to any suitable hand or power-press in such a way that the arms can be turned round.

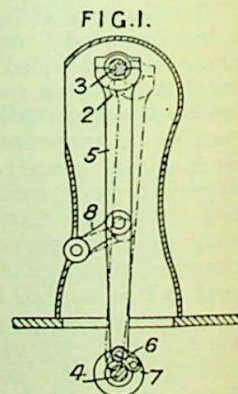
196,832. Dover, H. W. May 24, 1922.



Crochet and like hooks.—A crochet-hook or knitting-pin of the type having a central core of steel or other stiffening material is formed of two longitudinally divided parts grooved for the reception of the core and cemented together. The core may be in two overlapping parts *k¹*, *k²*, Figs. 10 and 11. Figs. 3 and 4 show cross-sections of suitable dies for moulding the parts of the hook.

197,054. Cooper, J., and Twin Bobbin Sewing Machine Co., Ltd. Feb. 14, 1922.

Upper and lower shafts, connecting.—The lower shaft 4 is given a variable rotary motion by means of a crank 3, on the constantly-running upper shaft 2, and a connecting-rod 5 pivotally connected to a link 8 and connected at its lower end to a crank 7 on the shaft 4 by a drag-link 6.



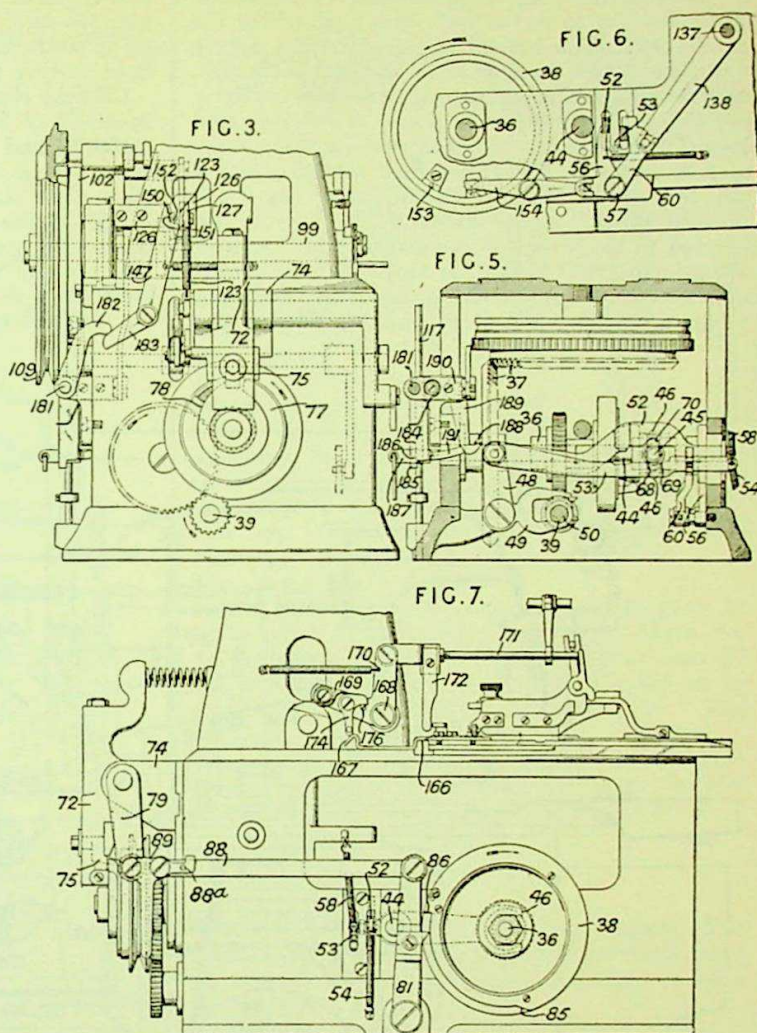
197,463. Fairweather, W., (Singer Manufacturing Co.). March 8, 1922.

Button-hole sewing-machines.

—A machine of the type described in Specification 183,873 is arranged so that it will operate to cut the buttonhole prior to stitching. Means for starting the rapid-feed mechanisms to move the stitch-forming mechanism and work-clamp continuously into sewing relation is controlled by the button-hole cutting mechanism.

Button-holes, cutting. Depression of the starting rod 117, Fig. 1, connects a two-armed lever 18, 113 to a cam-groove in the continuously rotating pulley 109, which thereupon transmits a single to-and-fro movement to the lever in the known manner. As the arm 18 is depressed, a tooth 122 on a link 123, which is pivoted at 124 to the arm 113, is drawn forward and drops, under the influence of a spring 123', in front of a shoulder on a lateral arm 126 of the usual controlling lever 106 for the cutter-shaft clutch. The tooth 122 is formed on a plate 127 adjustably fixed to the link 123. During the return movement of the arm 18, the tooth 122 pushes the arm 126 rearwardly, thereby shifting the lever 106 and its latch-plate 105 inwardly, to clutch the cutter-shaft 99 to the continuously-running pulley 109 for one revolution. A cam 143 on the shaft 99 lifts a lever 145 pivoted to the machine-standard so that a lateral extension 145' thereof lifts the link 123 out of engagement with the arm 126. The usual cam on the hub of the driven disc 102 of the cutter-shaft clutch device restores the bellcrank-lever 106, 126 to initial position for arresting the rotation of the cutter-shaft. When the link 123 is lifted, the shoulder 150 of a spring-actuated latch-lever 147, Fig. 3, swings underneath the link 123 to hold it in ineffective position, and an extension 151 of the lever 147 is positioned in rear of a pin 152 on the arm 126, blocking possible accidental movement of the lever 106, 126 to starting position during sewing.

Actuation of feed. The usual rapid-feed and stitching-feed mechanism is employed, the rapid-feed shaft 36, Fig. 5, being connected to the continuously-running shaft 39 by means of the usual endwise-movable rod 44 carrying the clutch-operating fork 46 and a lateral pin 45. A bellcrank lever 49, 48, continuously rocked by a crank 50 on the shaft 39, reciprocates bars 52, 53 which are normally held by latches 56, 60, against the action of springs 54, 58, Figs. 5 and 7. Just before the cutter-shaft is stopped, a cam projec-



tion 135, Fig. 1, on the disc 102 depresses a lever 136 fixed to a shaft 137. The lower end of a lever 138 also fixed to the shaft 137 engages with the slotted latch 60, Figs. 1 and 6. The depression of the lever 136 thus withdraws the latch 60, so that an abrupt shoulder 68 on the bar 53 engages with the pin 45 on the clutch-actuating rod 44 and pushes it to the right, thus starting the rapid feed to shift the work from cutting to sewing position. On the return motion of the bar 53 the inclined shoulder 69 thereon encounters the pin 45, which forces the bar 53 downward so that the latch 60 again engages therewith. When stitching position is reached, the cam-rise 85, Fig. 7, on the usual auxiliary cam-disc 38 fixed to the rapid-feed shaft 36 initiates through the members 81, 88, 89, 79 the shifting of the usual stop-motion lever 72 to running position, thus starting the stitch-forming mechanism. The link 88, 89 is of toggle formation, so that by bending the toggle the starting connection may be rendered inoperative. A spring-pressed pin 88^a on the link 88 yieldingly engages in a recess in the member 89. At the same time a tripping point 153, Fig. 6, on the inner face of the element 38 lifts a lever 154 which in turn

withdraws the latch 56 from beneath the bar 52. A shoulder 70, Fig. 5, on the bar 52 thereupon shifts the pin 45 to the left, thus declutching the rapid-feed. The bar 53 is raised on the return motion and the latch 56 again engages therewith. At the completion of sewing, the cam-declivity 86, Fig. 7, on the disc 38 allows the stop-motion lever 72 to return to stopping position. The stop-motion tooth 75, Fig. 1, has fixed thereto a lateral pin 155 which engages with a slotted lever 156 pivoted at 157 to the bracket 74. A lever 159 pivoted to the lever 156 is yieldingly held against a fixed pin 162. When the tooth 75 rides up the cam-rise 78, a tooth 160 on the lever 159 snaps under a shoulder 164 of an arm 165 fixed to the

shaft 157. When the tooth 75 drops into the stop-notch of the cam 77, the tooth 160 rocks the arm 165 and, with it, the lever 138 and the latch 60 to start the rapid-feed and return the work from sewing to cutting position.

Clamps, closing, spreading, opening. The work-holder is of the type described in Specifications 10039/14 and 183,873. The anti-clockwise movement of the arm 18, Fig. 1, actuates the lever 16 to close the work-clamp. A lever 131 pivoted at 132 to the frame is rocked by a cam 129 on the cutter shaft after cutting has taken place, so that the end 134 of the lever pushes forward the lever 32 of the usual toggle-mechanism to spread the work-clamp. The extremity of a bar 166,

FIG. 1.

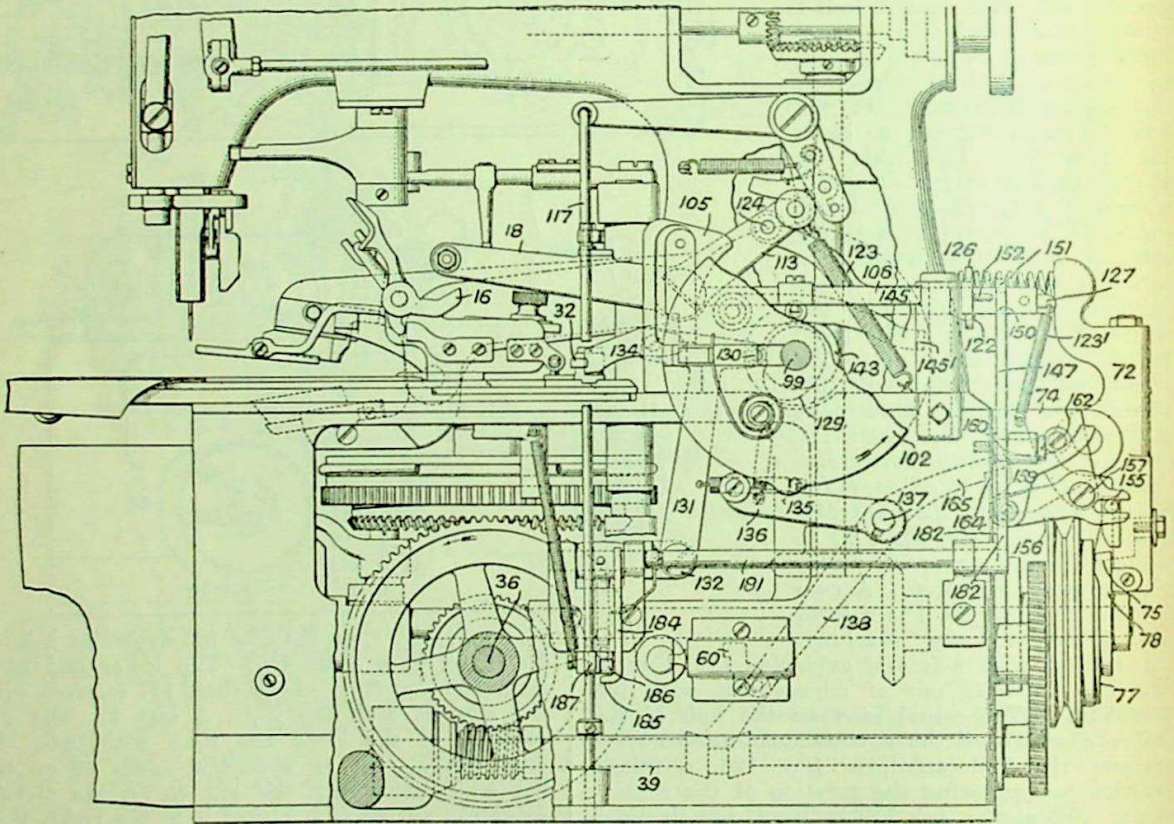
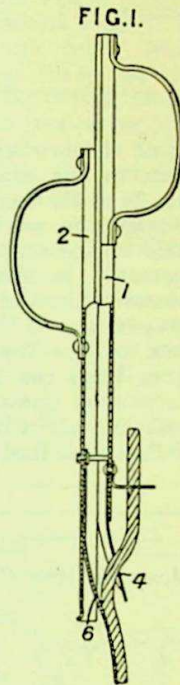


Fig. 7, fixed to the work-holder is bent to form a cam-incline 167. One arm 170 of a bell-crank lever 169, 170 pivoted to the machine standard is connected to the usual clamp-opening push-rod 171, from which depends the unspreading arm 172. A lever 174 pivoted to the arm 169 is yieldingly held against a pin 176 thereon. Rearward motion of the work-holder from sewing to cutting position rocks the lever 169, 170 to push forward the rod 171, thus opening and unspreading the work-clamp.

Starting and stopping. A tappet arm 182, Fig. 3, fixed to a rock-shaft 181 engages an arm 183 of the lever 147. To the forward end of the shaft 181 is fixed an arm 184, Fig. 1, the end 185 of which underlies a cam-incline 186, Fig. 5,

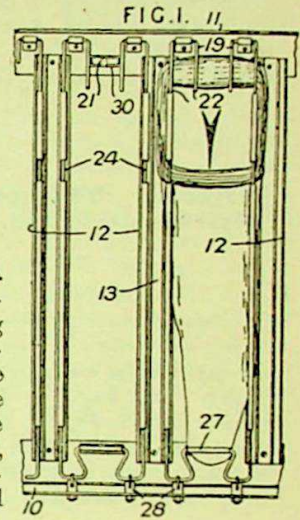
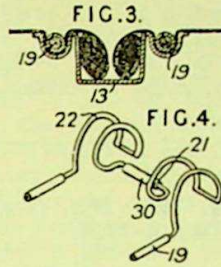
on a block 187 fixed to the starting-rod 117. When the rod 117 is pulled down to start the machine the arm 184, and therefore the arm 182, will be rocked by the cam 186. The arm 182 swings the lever 183, 147, Fig. 3, thus releasing the link 123 in readiness to actuate the cutter-starting mechanism. When the rod 117 is fully depressed, the arm 184 snaps over the block 187 to latch the starting-rod. During the final movement of the rapid-feed shaft 36, a tripping point 188, Fig. 5, on the usual gear 37 swings outwardly an arm 189 pivoted to the frame. The arm 189 engages a tail 191 of the arm 184 and swings the latter outwardly to release the starting-rod.

197,512. **Clarke, T. V.** April 21, 1922.



Hand sewing-tools.—In a tufting tool of the type having a needle 4 and a loop-holder 6 carried by relatively-sliding hand-parts 1, 2, the loop-holder 6 is ribbed at least where it is curved and has a V-shaped notch for engagement with the thread loops. Specification 1818/12 is referred to.

197,532. **Meyer, O.** May 8, 1922.



Embroidery machines.—A work-holder especially adapted for holding seamless stockings comprises a stationary frame with channelled side members 12 having the section shown in Fig. 3, connecting end members 10, 11, and hinged clamping members 19. The members 19 are formed at one end with reversely curved parts 22 having free ends united by a short sleeve 30. At the other end fabric-engaging cross-pieces 27 are provided and the clamps are adapted to be connected to the frame by catches 28. The rolled-up part of a stocking is accommodated in the loops 22, in channels 13 of the side members 12, and in kinked parts 24 of the clamp, the end of the stocking being gripped by the part 27.

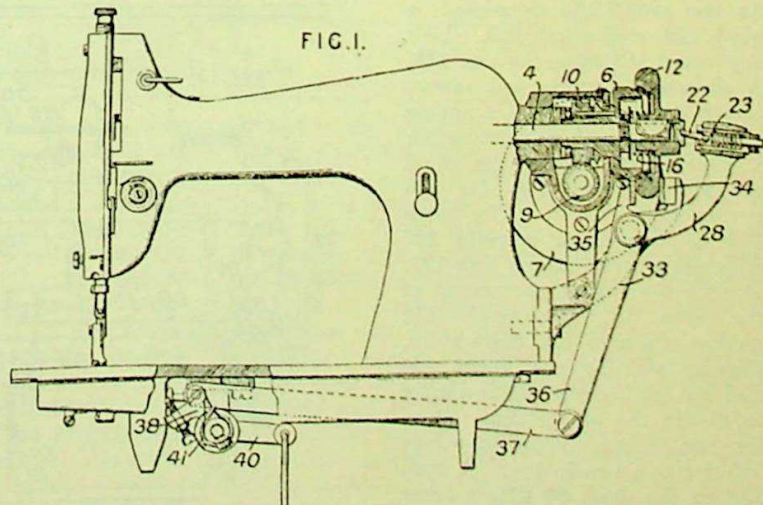
197,559. **Sangster, C. T. B.** June 6, 1922.

Darning.—A darning appliance comprises a

bed of wires secured in a yielding backing. The backing may be a domed pad of indiarubber, may be secured at its edges only, and may be of a light colour.

197,614. **Fairweather, W.,** (Singer Manufacturing Co.). Feb. 13, 1922. Addition to 186,130.

Starting and stopping gear.—In stopping and starting means of the type described in the parent Specification, a thrust rod is connected at one end to the clutch controlling-lever and is received at its other end in a central socket of the driven clutch member, these connections forming its sole supports. An electric motor 7 drives by spiral gears 9, 10 a clutch member 6 loose on the main shaft 4, to which the driven member 12 is slidably keyed. The member 12 is connected by a ball-ended thrust rod 22 to a spring-pressed plug 23 carried by the arm 28 of an actuating-lever 36, means of which the clutch

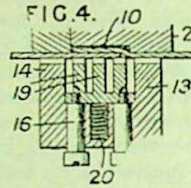


is put into engagement against its spring 16. The arm 35 of the lever 36 carries a brake block acting on the side of the member 12 to press it into contact with a stationary block 34 on a bracket 33. The lever 36 is connected by linkage 37, 38, 40 to a treadle, initial depression of

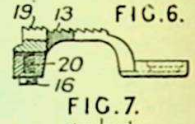
which releases the brake and permits the wheel 12 to be turned by hand, complete depression putting the clutch into engagement. A coil spring 41 tends to hold the brake in action, as shown.

197,622. Thompson, W. P., (Union Special Machine Co.). Dec. 6, 1922.

Sewing-machines; feed by dogs; presser-foot.—In a multiple-needle machine sewing a seam such as that shown in Fig. 7, the presser-foot 2, Fig. 4, is recessed as at 10 from the stitching point, to accommodate the overlapped por-



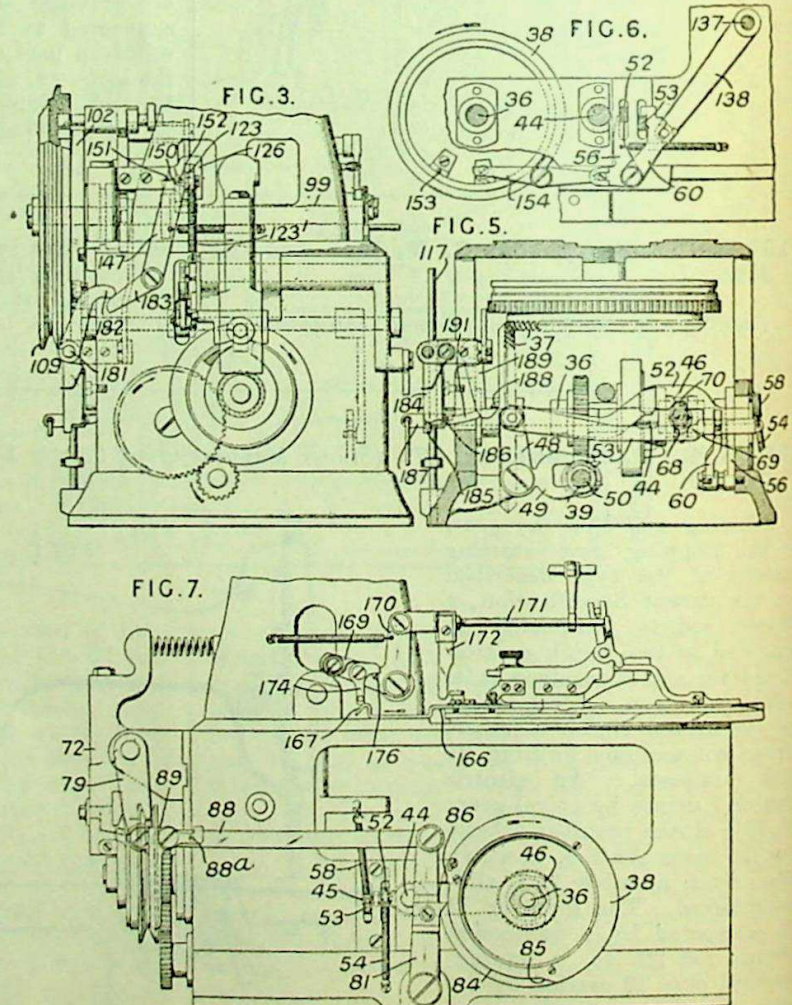
tions of fabric and, in addition to the main portions 13, 14 of the feed-dog which engage the work on either side of the seam, a spring-pressed portion 19 is mounted in the forward end of the feed-dog to project above the surface of the main feed-dog and engage the overlapped portions after they pass from the stitching point. The portion 19 is pressed upwards by a spring 20 and is guided and limited in its movement by two bolts 16. A differential feed-dog may also be provided.



197,629. Fairweather, W., (Singer Manufacturing Co.). March 8, 1922.

Button-hole sewing-machines.—A machine of the type described in Specification 183,873 is arranged so that it will operate to cut the buttonhole prior to stitching. An element to which clamp-closing and return impulses are imparted is connected so that on its return impulse it operates means for starting the cutter mechanism.

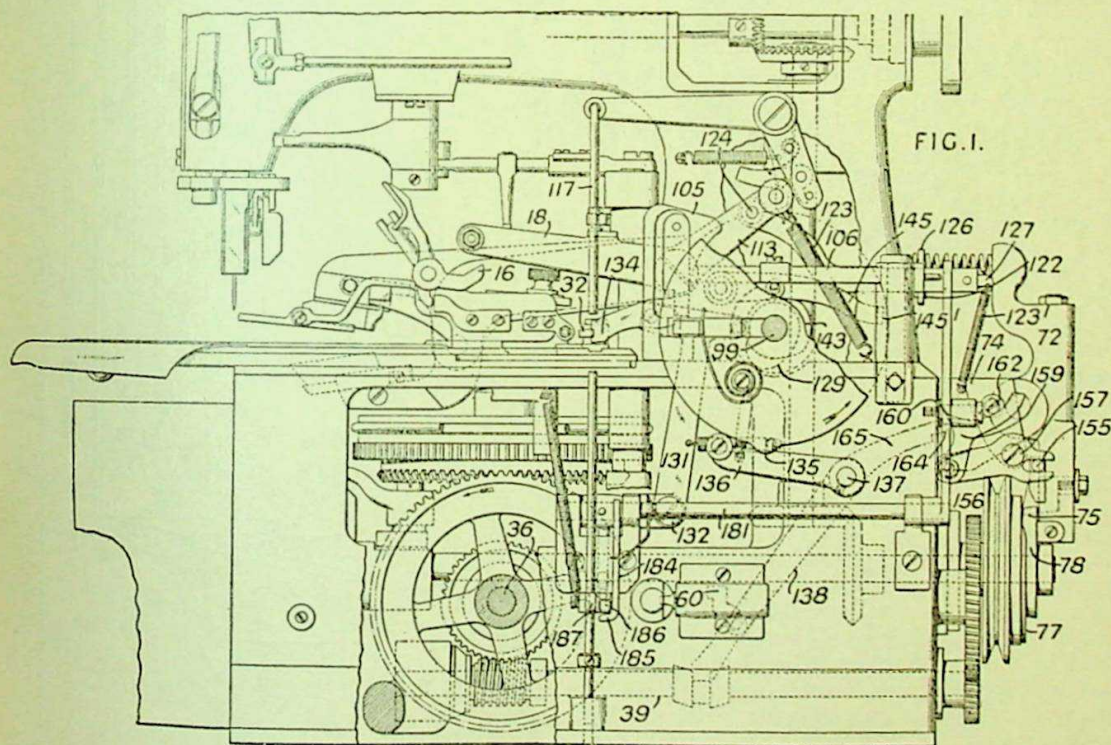
Button-holes, cutting. Depression of the starting-rod 117, Fig. 1, connects a two-armed lever 18, 113 to a cam-groove in the continuously-rotating pulley 109, which thereupon transmits a single to-and-fro movement to a two-armed lever 18, 113 in the known manner. As the arm 18 is depressed, a tooth 122 on the link 123, which is pivoted at 124 to the arm 113, is drawn forward and drops under the influence of a spring 123' in front of a shoulder on a lateral arm 126 of the usual controlling lever 106 for the cutter-shaft clutch. The tooth 122 is formed on a plate 127 adjustably fixed to the link 123. During the return movement of the arm 18, the tooth 122 pushes the arm 126 rearwardly, thereby shifting the lever 106 and its latch-plate 105 inwardly to clutch the cutter-shaft 99 to the continuously-running pulley 109 for one revolution. A cam 143 on the shaft 99 lifts a lever 145 pivoted to the machine-



standard so that a lateral extension 145¹ thereof lifts the link 123 out of engagement with the arm 126. The usual cam on the hub of the driven disc 102 of the cutter-shaft clutch device restores the bellcrank-lever 106, 126 to initial position for arresting the rotation of the cutter-shaft. When the link 123 is lifted, the shoulder 150 of a spring-actuated latch-lever 147, Fig. 3, swings underneath the link 123 to hold it in ineffective position, and an extension 151 of the lever 147 is positioned in rear of a pin 152 on the arm 126, blocking possible accidental movement of the lever 106, 126, to starting position during sewing.

Actuation of feed. The usual rapid-feed and stitching-feed mechanism is employed, the rapid-feed shaft 36, Fig. 5, being connected to the continuously-running shaft 39 by means of the usual endwise-movable rod 44 carrying the clutch-operating fork 46 and a lateral pin 45. A bell-crank lever 49, 48 continuously rocked by a crank 50 on the shaft 39 reciprocates bars 52, 53, which are normally held by latches 56, 60 against the

action of springs 54, 58, Figs. 5 and 7. Just before the cuttershaft is stopped, a cam projection 135, Fig. 1, on the disc 102 depresses a lever 136 fixed to a shaft 137. The lower end of a lever 138 also fixed to the shaft 137 engages with the slotted latch 60, Figs. 1 and 6. The depression of the lever 136 thus withdraws the latch 60, so that an abrupt shoulder 68, Fig. 5, on the bar 53 engages with the pin 45 on the clutch-actuating rod 44 and pushes it to the right, thus starting the rapid-feed to shift the work from cutting to sewing position. On the return-motion of the bar 53 the inclined shoulder 69 thereon encounters the pin 45, which forces the bar 53 downward so that the latch 60 again engages therewith. When stitching position is reached the cam-rise 85, Fig. 7, on the usual auxiliary cam-disc 38 fixed to the rapid feed shaft 36 initiates through the members 81, 88, 89, 79 the shifting of the usual stop-motion lever 72 to running position, thus starting the stitch-forming mechanism. The link 88, 89 is of toggle formation, so that by



bending the toggle the starting-connection may be rendered inoperative. A spring-pressed pin 88^a on the link 88 yieldingly engages in a recess in the member 89. At the same time a tripping-point 153, Fig. 6, on the inner face of the element 38 lifts a lever 154, which in turn withdraws the latch 56 from beneath the bar 52. A shoulder 70, Fig. 5, on the bar 52 thereupon shifts the pin 45 to the left, thus declutching the rapid-feed. The bar 53 is raised on the return motion and the latch 56 again engages therewith. At the completion of sewing, the cam-declivity 86 on the disc 38, Fig. 7, allows the stop-motion lever 72 to return to stopping position. The stop-motion tooth 75, Fig. 1, has fixed thereto a lateral pin 155 which engages with a slotted lever 156 pivoted at 157 to the bracket 74. A lever 159

pivoted to the lever 156 is yieldingly held against a fixed pin 162. When the tooth 75 rides up the cam-rise 78, a tooth 160 on the lever 159 snaps under a shoulder 164 of an arm 165 fixed to the shaft 157. When the tooth 75 drops into the stop-notch of the cam 77, the tooth 160 rocks the arm 165 and with it the lever 138 and the latch 60 to start the rapid-feed and return the work from sewing to cutting position.

Clamps, closing, spreading, opening. The workholder is of the type described in Specifications 10039/14 and 183,873. The anti-clockwise movement of the arm 18, Fig. 1, actuates the lever 16 to close the work-clamp. A lever 131 pivoted at 132 to the frame is rocked by a cam 129 on the cutter-shaft, after cutting has taken place, so that the end 134 of the lever pushes forward

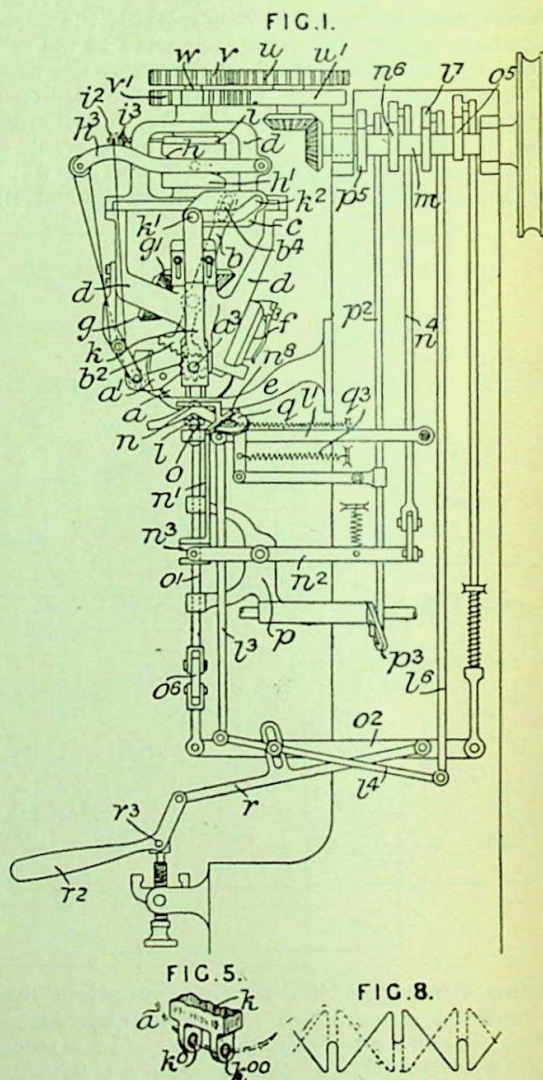
the lever 32 of the usual toggle-mechanism to spread the work-clamp. The extremity of a bar 166, Fig. 7, fixed to the work-holder is bent to form a cam-incline 167. One arm 170 of a bell-crank lever 169, 170 pivoted to the machine standard is connected to the usual clamp-opening push rod 171 from which depends the unspreading arm 172. A lever 174 pivoted to the arm 169 is yieldingly held against a pin 176 thereon. Rearward motion of the work-holder from sewing to cutting position rocks the lever 169, 170 to push forward the rod 171, thus opening and unspreading the work-clamp.

Starting and stopping. A tappet arm 182, Fig. 3, fixed to a rock-shaft 181 engages an arm 183 of the lever 147. To the forward end of the shaft 181 is fixed an arm 184, Fig. 1, the end 185 of which underlies a cam-incline 186, Fig. 5, on a block 187 fixed to the starting rod 117. When the rod 117 is pulled down to start the machine the arm 184, and therefore the arm 182, will be rocked by the cam 186. The arm 182 swings the levers 183, 147, Fig. 3, thus releasing the link 123 in readiness to actuate the cutter-starting mechanism. When the rod 117 is fully depressed, the arm 184 snaps over the block 187 to latch the starting rod. During the final movement of the rapid-feed shaft 36, a tripping point 188, Fig. 5, on the usual gear 37 swings outwardly an arm 189 pivoted to the frame. The arm 189 engages a tail 191 of the arm 184 and swings the latter outwardly to release the starting-rod.

197,676. Roger, G. C. May 10, 1922, [Convention date].

Sewing-machines with work-benders.—In a machine specially adapted for sewing soles of slippers, sandals &c. and comprising a lock-stitch mechanism and intermittently operating work-benders, the stitch forming mechanism is rotated bodily through 180° between stitches so as to produce a stitch of the form shown in Fig. 8. In the form of machine shown, a curved needle *a* is carried by an arm *a*¹ vibrated by a pinion *a*³ and a sector *b*² carried by a lever *b* a slot in which is engaged by a pin *b*⁴ on a slide *c* reciprocated by a connection with a shaft *w*. A shuttle *f* is carried by a driver mounted on an inclined axis and driven by bevel gearing *g*, *g*¹ from the shaft *w*. A take-up arm *h*³ is actuated by a cam-slot *h* in a cam *h*¹, and a thread nipper *i*², *i*³ by a cam *i*, both cams being on the shaft *w*. The stitch-forming mechanism is mounted on a frame *d* through which the shaft *w* passes, and is rotated intermittently through 180° by a mutilated pinion *u*¹ having six teeth engaging a pinion *v*¹ on the frame having two sets of six teeth. Coaxial with the pinion *u*¹ is a pinion *u* meshing with a pinion *v* on the shaft *w* having two-thirds the number of teeth of the pinion *u*. The pinions *u*, *u*¹ are driven from a continuously rotating shaft *m* which actuates mechanisms for bending and feeding the work. The upper work-bender *k* is reciprocated vertically by the cam-slot *k*² in the slide *c* engag-

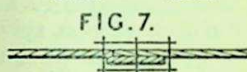
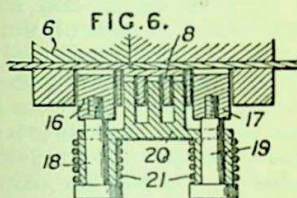
ing a roller *k*¹. The lower work-bender *l* distorts the work between the spaced jaws of the member *k* which are formed with apertures *k*⁰, *k*⁰⁰ for the needle. The part *l* is carried by a lever *l*¹ actuated through link members *l*³, *l*⁴, *l*⁶ by a cam *l*⁵. The work is fed by jaws *n*, *o* the upper jaw *n* being carried by a bar *n*¹ actuated to engage the work through a lever *n*², slot-connection *n*³, and link *n*⁴ by a cam *n*⁶, and the lower jaw carried by a rod *o*¹ similarly operated from a cam *o*⁵. The feeding movement is effected by a yoke *p* engaging the rod *o*¹ and rocked in a plane at right angles to the plane of Fig. 1 by a rod *p*² engaging



a stopped bar *p*³ and reciprocated by a cam *p*⁵, the jaw-actuating members being provided with pivoted sections such as *o*⁶ to allow this movement. To assist in the feed where a curved path is to be followed, a member *q* is provided pressed against a bar *n*⁸ on the upper jaw *n* by a spring *q*³ and actuated by a link connection with the rod *p*². The needle is guided by a groove in an arm *e* projecting from the fixed framing. The members *l*, *o* may be manually depressed to release the work by the operation of a lever *r*¹

having an adjustable fulcrum r^3 and connected by a lever r to the bars o^2 and l^4 . In operation the needle makes a to and fro stroke while the blank portion of the pinion u^1 passes the pinion v^1 in performing two-thirds of a rotation. During the remaining third the frame as a whole is rotated through 180° and the needle remains stationary relatively thereto.

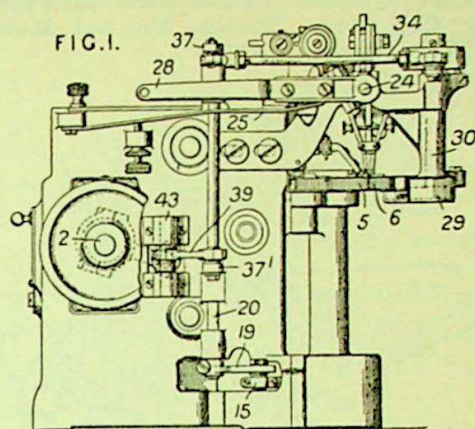
197,892. Thompson, W. P., (Union Special Machine Co.). Dec. 6, 1922.



Sewing-machines; feed by dogs; work-supports.—In a multiple-needle machine sewing a seam such as that shown in Fig. 7, the throat plate 8, Fig. 6, is recessed from the stitching point to accommodate the overlapped or thickened portion of the seam and, in addition to the main portions 16, 17 of the feed dog which engage the work on either side of the seam, a spring-pressed portion 20 is mounted in the end of the feed-dog beyond the stitching point to engage the overlapped portions after they are stitched together. The portion 20 is guided on two pins 18, 19 carried by the feed-dog, and is pressed upward by springs 21. The presser-foot may be recessed instead of the throat-plate and is provided with a yielding section 6.

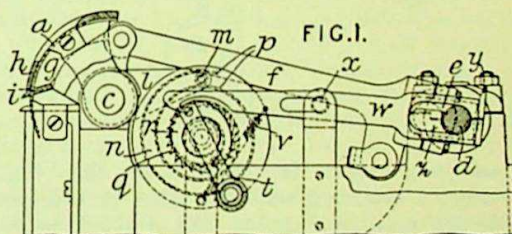
197,893. Thompson, W. P., (Union Special Machine Co.). Dec. 8, 1922.

Overhead-sewing machines.—The feed-cups 5, 6 are driven intermittently by separate gears at speeds which may differ and are adjusted either separately or together. The outer cup 6 is carried in a bracket pivoted at 24 and is rotated by a toothed wheel 29 on a shaft 30 which carries at its upper end a silent ratchet gear. This gear is actuated by means of a link 34, a slotted lever-arm 37 and shaft 20. The inner cup is similarly actuated from the shaft 20 by means of a slotted lever-arm 19 and a link 15. The shaft 20 is oscillated by an eccentric on a shaft 2, a rock shaft 43, a link 39 and a slotted lever-arm 37¹.



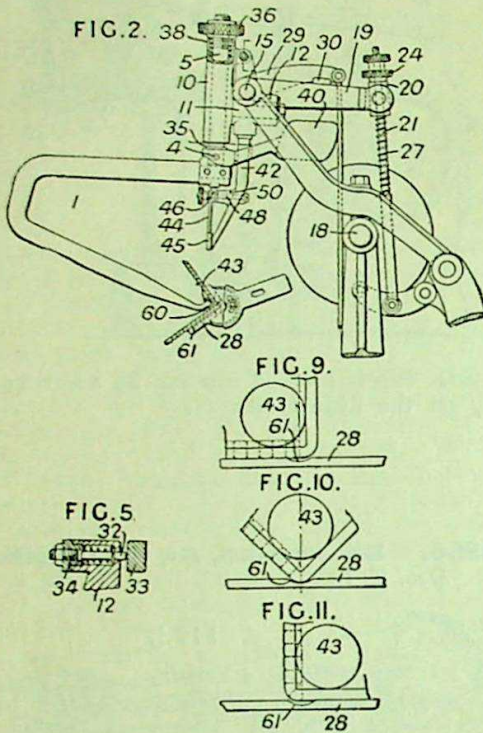
The outer cup is pressed inwards by a spring 25 acting on the lifting-lever 28.

198,296. Ehresmann, A., and Streibel, L. Dec. 5, 1922.



Sewing-machines; presser-bars with periodic control.—In a leather-sewing-machine having a curved needle, the presser-foot is applied to the work before the operation of the needle by a lever actuated by a spring-rotated spiral cam engaging a roller on the lever, so that the pressure of the presser-foot is uniform irrespective of the thickness of the work. The needle a is mounted in a holder pivoted on a shaft c and is reciprocated by a link f connected to a crank e on a shaft d . Arms g carrying the presser foot i are connected together by a plate h forming a guide for the needle. A lever l rigid with the hub of one of the arms carries a roller m entering a spiral cam p on a disc n provided with a ratchet-wheel q and having a hub r in which is a spring tending to turn the ratchet-wheel and spiral in a counter-clockwise direction. A ratchet-bar w mounted so as to engage the teeth of the wheel q is guided by a fixed pin x , entering a slot inclined to the axis of the bar, and has a forked extremity embracing the shaft d . A projection z on the crank e engages a projection y on the bar w in each revolution of the shaft d and causes the retraction of the bar and rotation of the spiral-cam. At a certain point the inclination of the slot causes the ratchet-bar to leave the teeth of the wheel q so that the spiral is then reversely rotated by the spring, the ratchet-bar being returned after release from the projection z by a spring v . The cam p may also be rotated by hand.

198,430. British United Shoe Machinery Co., Ltd., Ricks, F., and Reid, R. G. March 2, 1922.



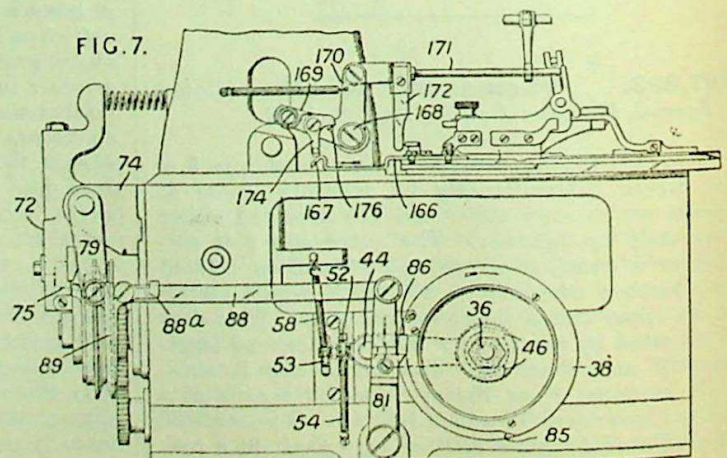
Sewing-machines; suit-cases and the like, stitching; horns and related parts.—A machine for sewing suit-cases or the like of the type described in Specification 174,419 is provided with (a) a bag-entering supporting-horn, capable of restricted rotary and axial movement, and of movement in the line of feed, (b) means to position the work when swinging on a corner, and (c) means to indicate the relative position of the

needle and the work when operating near a bag-corner. A horn 1, Fig. 2, provided with a balance-weight 40 is fixed by a pin 4 to a spindle 5 journaled in a bearing 10. An arm 11 on the bearing 10 is journaled in a member 12, rotatably mounted on a shaft 15 fixed to the frame. A work-engaging roll 43 is universally mounted on the horn 1 and is limited in movement by a pin 60. Movement of the bearing 10 on its pivot 11 is restricted by a lug 33 thereon, engaging between plungers 32 and stop-screws 34. A block 20 pivoted to an arm 19 of the member 12 is slidably mounted between a nut 24 and a spring 27 on a rod 21. The rod 21 is actuated from the main cam-shaft 18 to cause the horn 1 to clamp and free the work in time with the feed. A treadle-actuated lever 29 pivoted to the shaft 15 has a lug 30 which actuates the arm 19 to swing the horn 1 from the support 28 for manipulating the work. The spindle 5 has axial movement limited by a collar 35 and an adjustable screw 36, which normally rests on the bearing 10, the weight of the horn being balanced by a spring 38. A rod 42 on the member 12 passes through an opening in the member 40, thus limiting the rotation of the horn 1. Movement of the horn about the pivot 11 is shown by a pointer 44 on a scale 45 attached to the rod 42. The pointer 44 and an arm 46, which engages in a recessed boss on the horn, are clamped to a spindle 48, rotatably mounted in a bearing 50 on the rod 42. When the roll 43 contacts with a corner of the work, the operator inserts one or more stitches, as shown in Fig. 9, in accordance with the indication of the scale 45, then cuts out the feed, and puts in one or more corner stitches, Figs. 10 and 11, meanwhile swinging the bag round with its corner positioned by a depression 61 on the support 28. An auxiliary work-support comprises a felt-covered horizontal bar, the stem of which has rotational and vertical adjustment in a bracket on the machine column.

198,628. Fairweather, W., (Singer Manufacturing Co.). March 8, 1922.

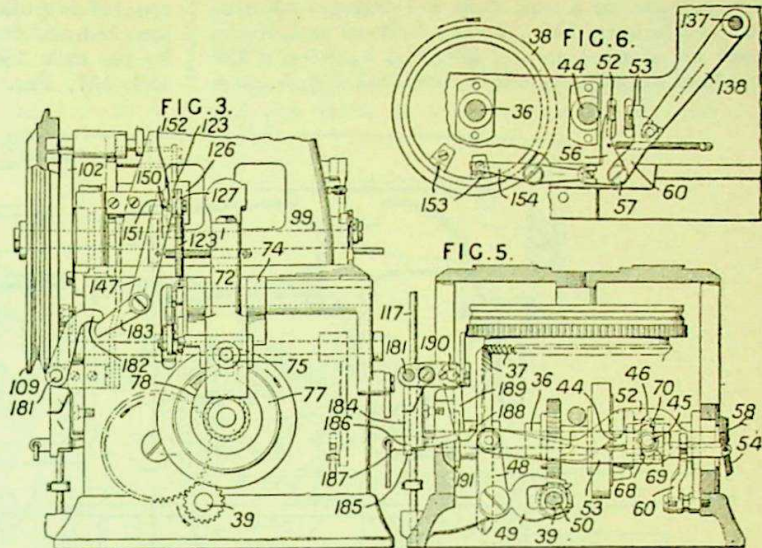
Button-hole sewing-machines.—The machine described in Specification 183,873 is re-organised so that it will operate to cut the buttonhole prior to stitching. Means operated by the relative movement of the stitch-forming mechanism and the work-clamp, are provided for unspreading and opening the work-clamp.

Button-holes, cutting. Depression of the starting-rod 117, Fig. 1, connects a two-armed lever 18, 113 to a cam-groove in the continuously rotating pulley 109 which thereupon transmits a single to-and-fro



movement to the lever in the known manner. As the arm 18 is depressed, a tooth 122 on a link 123, which is pivoted at 124 to the arm 113, is drawn forward and drops, under the influence of a spring 123¹, in front of a shoulder on a lateral arm 126 of the usual controlling lever 106 for the cutter-shaft clutch. The tooth 122 is formed on a plate 127 adjustably fixed to the link 123. During the return movement of the arm 18, the tooth 122 pushes the arm 126 rearwardly, thereby shifting the lever 106 and its latch-plate 105 inwardly to clutch the cutter-shaft 99 to the continuously-running pulley 109 for one revolution. A cam 143 on the shaft 99 lifts a lever 145 pivoted to the machine-standard so that a lateral extension 145¹ thereof lifts the link 123 out of engagement with the arm 126. The usual cam on the hub of the driven disc 102 of the cutter-shaft clutch device restores the bellcrank-lever 106, 126 to initial position for arresting the rotation of the cutter-shaft. When the link 123 is lifted, the shoulder 150 of a spring-actuated latch lever 147, Fig. 3, swings underneath the link 123 to hold it in ineffective position, and an extension 151 of the lever 147 is positioned in rear of a pin 152 on the arm 126, blocking possible accidental movement of the lever 106, 126 to starting position during sewing.

Actuating of feed. The usual rapid-feed and stitching-feed mechanism is employed, the rapid-feed shaft 36, Fig. 5, being connected to the continuously-running shaft 39 by means of the usual endwise-movable rod 44 carrying the clutch-operating fork 46 and a lateral pin 45. A bellcrank lever 49, 48, continuously rocked by a crank 50 on the shaft 39, reciprocates bars 52, 53 which are normally held by latches 56, 60 against the action of springs 54, 58, Figs. 5 and 7. Just before the cutter-shaft is stopped, a cam 135, Fig. 1, on the disc 102 depresses a lever 136 fixed to a shaft 137. The lower end of a lever 138 also fixed to the shaft 137 engages with the slotted latch 60, Figs. 1 and 6. The depression of the lever 136 thus withdraws the latch 60, so that an abrupt shoulder 68 on the bar 53 engages with the pin 45 on the clutch-actuating rod 44 and pushes it to the right, thus starting the rapid feed to shift the work from cutting to sewing position. On the return motion of the bar 53, the inclined shoulder 69 thereon encounters the pin 45 which forces the bar 53 downward so that the latch 60 again engages therewith. When stitching position is reached, the cam-rise 85, Fig. 7, on the usual auxiliary cam-disc 38 fixed to the rapid feed shaft 36 initiates, through the members 81, 88, 89, 79, the shifting of the usual stop-motion lever 72 to running position, thus starting the stitch-forming mechanism. The link 88, 89 is of toggle formation, so that by bending the toggle the starting-connection may be rendered inoperative. A spring-



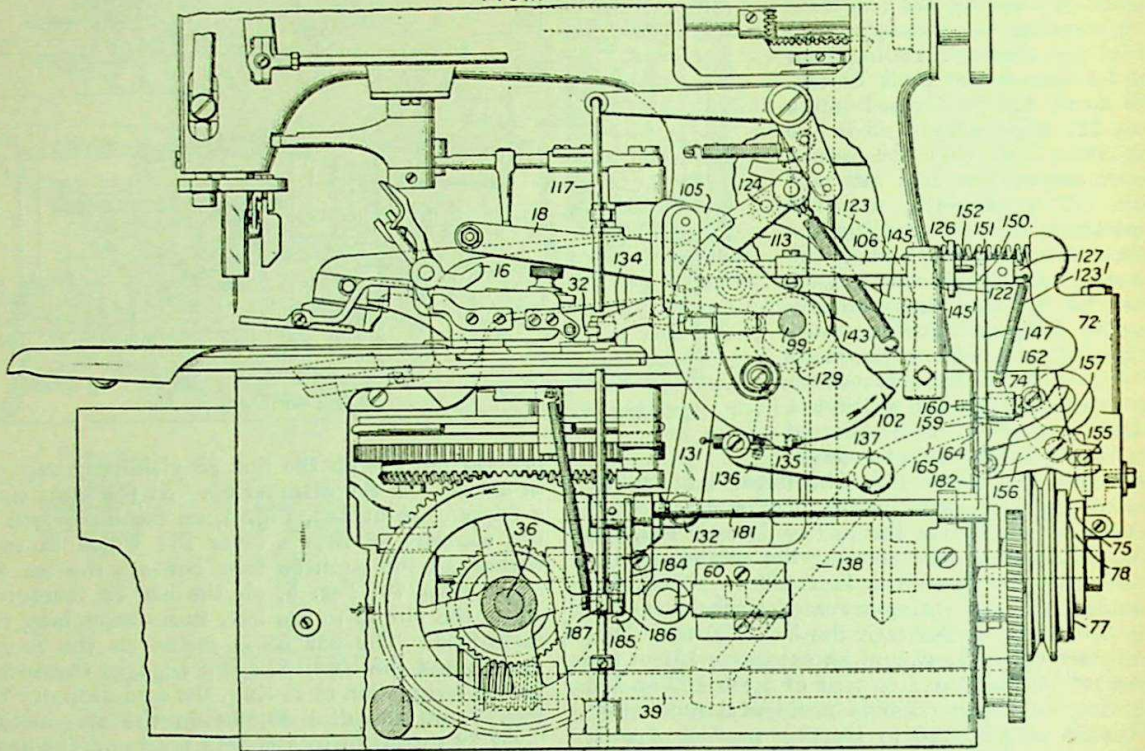
pressed pin 88^a on the link 88 yieldingly engages in a recess in the member 89. At the same time a tripping point 153, Fig. 6, on the inner face of the element 38 lifts a lever 154 which in turn withdraws the latch 56 from beneath the bar 52. A shoulder 70, Fig. 5, on the bar 52 thereupon shifts the pin 45 to the left, thus declutching the rapid-feed. The bar 53 is raised on the return motion and the latch 56 again engages therewith. At the completion of sewing, the cam-declivity 86, Fig. 7, on the disc 38, allows the stop-motion lever 72 to return to stopping position. The stop-motion tooth 75, Fig. 1, has fixed thereto a lateral pin 155 which engages with a slotted lever 156 pivoted at 157 to the bracket 74. A lever 159 pivoted to the lever 156 is yieldingly held against a fixed pin 162. When the tooth 75 rides up the cam-rise 78, a tooth 160 on the lever 159 snaps under a shoulder 164 of an arm 165 fixed to the shaft 157. When the tooth 75 drops into the stop-notch of the cam 77, the tooth 160 rocks the arm 165, and with it the lever 138 and the latch 60, to start the rapid-feed and return the work from sewing to cutting position.

Clamps, closing, spreading, opening. The work-holder is of the type described in Specifications 10039/14 and 183,873. The anti-clockwise movement of the arm 18, Fig. 1, actuates the lever 16 to close the work-clamp. A lever 131 pivoted at 132 to the frame is rocked by a cam 129 on the cutter-shaft after cutting has taken place, so that the end 134 of the lever pushes forward the lever 32 of the usual toggle-mechanism to spread the work-clamp. The extremity of a bar 166, Fig. 7, fixed to the work-holder is bent to form a cam-incline 167. One arm 170 of a bell-crank lever 169, 170 pivoted to the machine standard is connected to the usual clamp-opening push-rod 171 from which depends the unspreading arm 172. A lever 174 pivoted to the arm 169 is yieldingly held against a pin 176 thereon. Rearward motion of the work-holder from sewing to cutting position rocks the lever 169, 170 to push forward the rod 171, thus opening and unspreading the work-clamp.

Starting and stopping. A tappet arm 182, Fig. 3, fixed to a rock-shaft 181 engages an arm 183 of the lever 147. To the forward end of the shaft 181 is fixed an arm 184. Fig. 1, the end 185 of which underlies a cam-incline 186, Fig. 5, on a

block 187 fixed to the starting-rod 117. When the rod 117 is pulled down to start the machine, the arm 184 and therefore the arm 182 will be rocked by the cam 186. The arm 182 swings the lever 183, 147, Fig. 3, thus releasing the link 123 in

FIG.1.

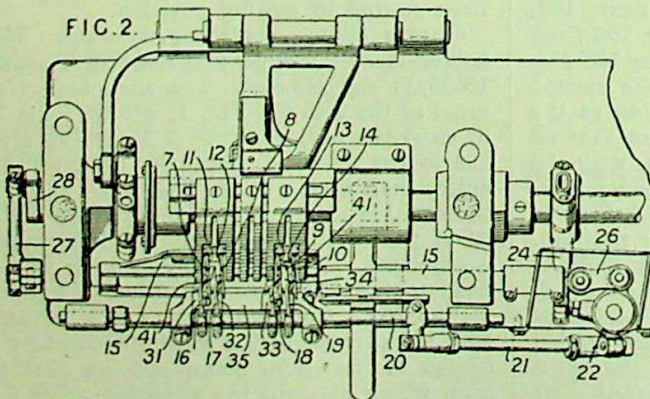


readiness to actuate the cutter-starting mechanism. When the rod 117 is fully depressed, the arm 184 snaps over the block 187 to latch the starting-rod. During the final movement of the rapid-feed shaft 36, a tripping point 188, Fig. 5,

on the usual gear 37 swings outwardly an arm 189 pivoted to the frame. The arm 189 engages a tail 191 of the arm 184 and swings the latter outwardly to release the starting rod.

198,972. Thompson, W. P., (Union Special Machine Co.). Dec. 13, 1922.

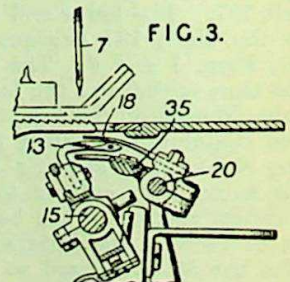
FIG.2.



Multiple-needle machines; needle-guides.—In machines having a threaded loop for each needle moving in a direction opposite to the feed as the needle-loop is taken, needle-guides are provided which are mounted on a single supporting-

yoke carried by a laterally-movable support. Threaded loopers 11 - - 14, co-operating with the needles 7 - - 10, are mounted on a shaft 15 rocked by a link 27 and crank 28 and moved endwise by a link 26, a bell-crank 22 and eccentric 24.

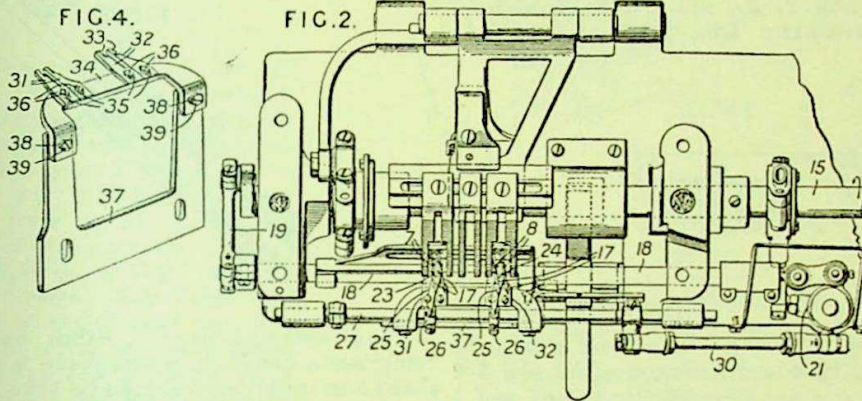
FIG.3.



Associated with the loopers are spreaders 16 - 19 mounted above the loopers on a bar 20 which is moved endwise by a connection 21 with the bell-crank lever 22. Needle guides 31 - 34 below the loopers are adjustably mounted on a yoke 35 adjustably clamped to the supporting bar 20 of the spreaders and are periodically moved by the

operation thereof to a position close to the descending needles. Slots 41 in the guides are adapted to receive the needle threads and obviate the throwing of wrongly-placed loops. The guides are adjustable lengthwise on their support, and the latter is adjustable along around the bar 20.

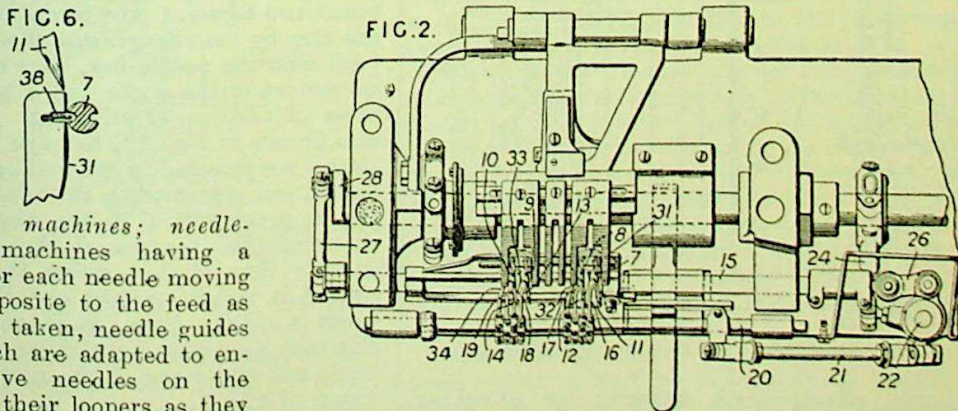
198,973. **Thompson, W. P.,** (Union Special Machine Co.). Dec. 13, 1922.



Multiple-needle machines; needle-guides.—In machines having a threaded looper for each needle moving in a direction opposite to the feed as the needle-looper is taken, a stationary needle-guide is provided for each needle which is adjustably secured to a rigid support. Threaded loopers 17, co-operating with the needles 7, 8, are mounted on a shaft 18 which is rocked by a link 19 connected to a crank on the main-shaft 15 and moved endwise by a link and a bell-crank 21 connected to an eccentric on the shaft 15.

Spreaders 23, 24 associated with the loopers are formed in pairs on shanks 25 clamped in sockets 26 secured on a bar 27 moved endwise by a link 30 connected to the bell-crank 21. The needle guides 31, 32 located below the loopers are formed with grooves 33 for the needle-threads which prevent displacement of the loops. The shanks of the guides are longitudinally adjustable by screws 36 and slots 35 in a yoke 34 adjustably mounted by screws 39 and slots 38 in a bracket 37 which in turn is vertically adjustable on the framing.

198,974. **Thompson, W. P.,** (Union Special Machine Co.). Dec. 13, 1922.



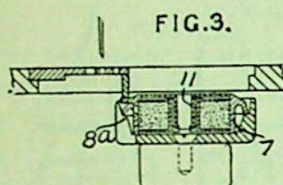
Multiple-needle machines; needle-guides.—In machines having a threaded looper for each needle moving in a direction opposite to the feed as the needle loop is taken, needle guides are provided which are adapted to engage the respective needles on the sides adjacent to their loopers as they enter the needle loops. Threaded loopers 11 - 14 co-operating with needles 7 - 10 are mounted on a shaft 15 rocked by a

link 27 and crank 28 and moved endwise by a link 26, a bell-crank 22 and eccentric 24. Spreaders

16 - 19 operate above the loopers, being adjustably mounted on a bar 20 which is reciprocated endwise by a link 21 connected to the lever 22. Needle-guides 31 - 34 are adjustably mounted in socket-pieces adjustably secured on

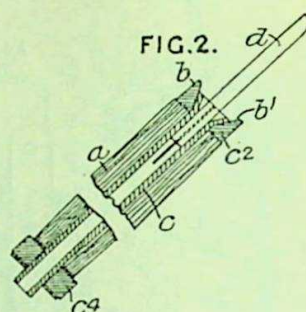
the bar 20, or on a fixed support. The guides are provided with slots 38, Fig. 6, of smaller diameter than the needles, these slots serving to receive the needle-threads and prevent displacement of the needle-loops.

199,063. Cooper, J., and Twin Bobbin Sewing Machine Co., Ltd. Feb. 9, 1922.



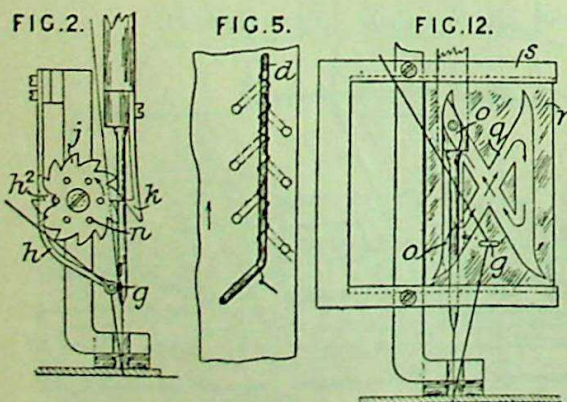
Lock-stitching by hooks.—In a hook rotating about a vertical axis and having a spool-case 7 supported on a circular ledge 8a, the closed end of the spool-case is placed uppermost and is furnished with finger holes. The spool is held in place by light bow springs on the outside of a central pin 11, and the pin 11 may be hollow. Specification 189,694 is referred to.

199,225. George, W. May 15, 1922.



Hand sewing-tools.—A hand embroidery-tool comprises a handle a, a metal cap b having an inclined surface b', an inner metal tube bell-mouthed and split at the end c^2 and a needle d. The needle can be clamped in any position in the tube by means of a nut c^4 which is used to draw the bell-mouthed end c^2 further into the coned cap b. The needle d may be of solid drawn tube pointed at one end and bell-mouthed or coned interiorly at the other end. Thread or yarn is passed axially through the tube c, and thence through the needle.

199,730. Roger, G. C. June 26, 1922, [Convention date]. Void [Published under Sect. 91 of the Act].



Cords, attaching.—A machine for attaching

cords &c. is provided with means for moving the cord from side to side of the stitch line between successive stitches. In an arrangement shown in Fig. 2, the cord is guided by a resilient arm h having a projection h^2 adapted to engage one of a set of pins on a toothed wheel j, or to project between two adjacent pins when the wheel is moved one step by the engagement therewith of a spring pawl k on the needle bar, thus effecting alternate movement of the guide eye g to one side or the other of the line of stitching. In the modification shown in Fig. 12, the eye q is carried by a plate r reciprocated in grooved bars s by a shuttle-shaped cam o pivoted on the needle bar and engaging in a cam-slot q in the plate r of the form shown. The tension of the attached cord d exceeds that of the sewing thread so that the cord d is pulled straight and the sewing thread given a zig-zag form, as shown in Fig. 5, and this may also cause a wrinkling of the edge of the work and curvature of the material such as the upper of a boot.

199,740. **Willcox & Gibbs Sewing Machine Co., Ltd.**, (Assignees of Merritt, A. A.). June 23, 1922, [Convention date].

FIG. 26.

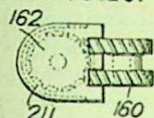
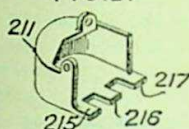


FIG. 27.



Sewing-machines; feed by wheels and dogs.—A feed-wheel especially adapted for use in machines dealing with work of greatly varying thickness is mounted on a carrier-bar movable relatively to the work, the wheel being driven from a shaft in the carrier which is continuously in gear with intermittently acting driving means on the frame. The wheel 160, mounted on a spring-pressed bar 165, has spiral gear-teeth meshing with those of a pinion 162 mounted on a shaft carried by the bar 165 and driven through an elongated pinion 170 and pinions 186, 183, 181, 179 from a worm 176 of special form fast on the needle-bar shaft 112. The threads of this worm have a pitch through half the circumference only, the remaining half being purely circumferential, so that the feed occurs during half of each revolution of the

FIG. 5.



FIG. 18.

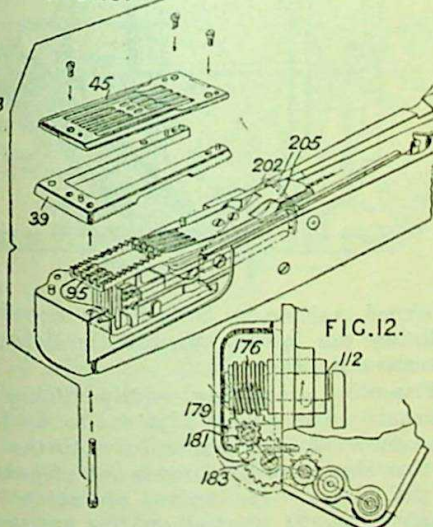
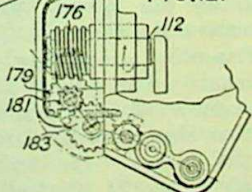


FIG. 12.



shaft 112. The pinions 186, 183, 181, 179 are mounted in a detachable bracket so that they can be readily replaced by gears of different ratio when it is desired to alter the length of feed stroke. The feed-wheel may be formed in two sections with a division between them as shown in Fig. 26, and a casing 211 enclosing the pinion 162 has tongues 215—217 which lie close to the

FIG. 1.

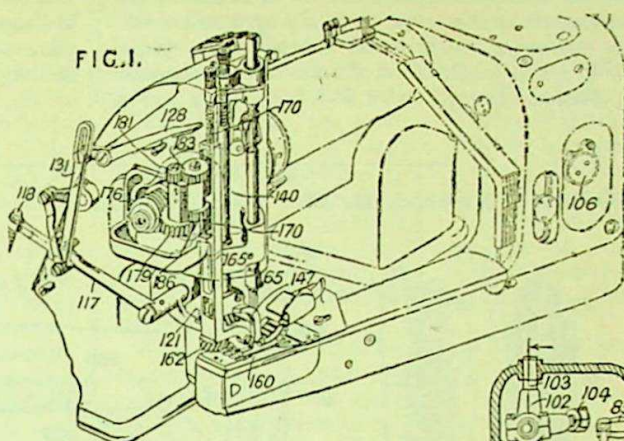
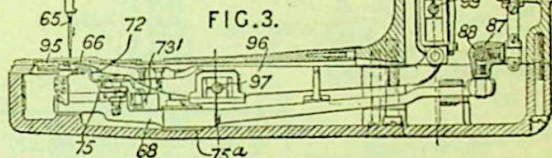


FIG. 3.



feed-wheel and strip therefrom fragments of material which become detached from the work and tend to clog the teeth. An under feed-dog 95 cooperates with the feed-wheel, and is carried by a feed-bar 96 having a sliding-pivot mounting on a pin 97 and connected to a lever 98 which has a sliding-pivot mounting on an adjustable pin 99. The upper end of the lever 98 is pivotally connected to a two-armed member 102 which is given a turning and sliding movement on a fixed shaft 103 by a pitman 104 connected to a driving crank on the main shaft. The position of the pin 99 is adjusted by a rack meshing with a pinion rotatable by a hand-wheel 106 which closes an opening in the casing. The lower feed dog may be faced with material such as rubber.

Presser-bar lifting devices; presser-feet.—Presser-bar lifting means are provided which comprise a lever 121, 117, the arm 121 engaging a lug on the presser-bar and the arm 117 being connected to a spring-returned needle-rod 118. A hand-lever 128 is connected to the lever-arm 117 by a slotted connecting-rod 131 the movement of which past a dead centre causes the lifting lever and presser-bar to be retained in the raised position. The presser-bar 140 carries spaced fingers 147, 148 terminating in part-cylindrical ends 149 which engage sockets 155 on a presser-foot and are held therein by set screws 156. The presser-foot comprises side members connected at their forward ends by rollers 153 and embracing at their rear ends the feed wheel.

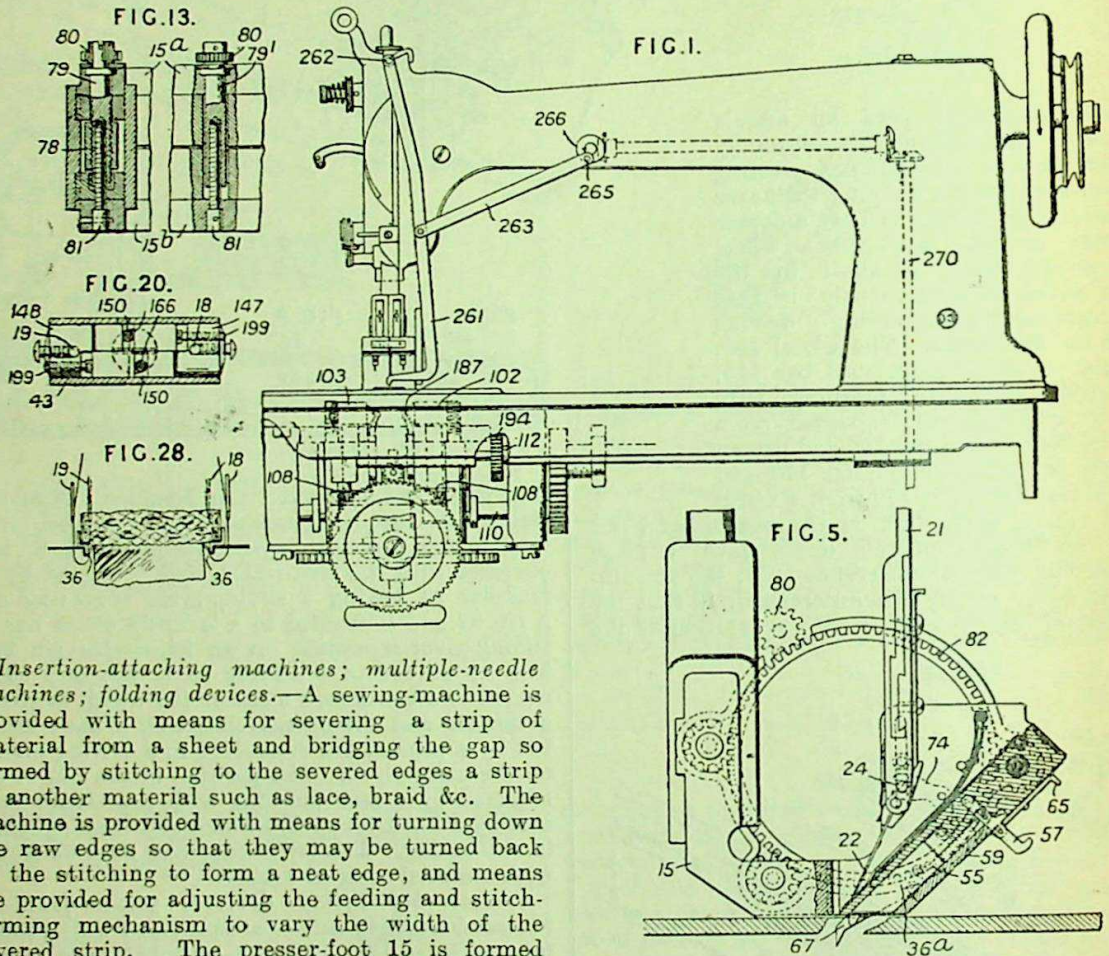
Multiple-needle machines.—The machine broadly is of known type and comprises multiple needles 65 co-operating with thread-carrying loopers 66 mounted on a lever 68 sliding in a rotatable block 75^a and actuated through a member 87, sliding and turning on a pin 88, a lever

86 and a pitman 88 driven from the main shaft. A spreader 72 co-operating with the loopers and pivoted in a supporting bracket 75 is actuated by a cam-groove in the lever 68 engaging a roller 73¹ on the spreader. A pivoted thread-guide plate 202, Fig. 18, is mounted in the work arm, threads being passed through holes 205 therein to avoid

entanglement. The plate is held in position by spring action.

Work-supports.—The work-plate comprises a U-shaped member 39 and a superposed slotted plate 45 positioned by pins and slots on the end of the work-arm and secured by screws.

199,861. Sharaf, R. M. April 11, 1922.



Insertion-attaching machines; multiple-needle machines; folding devices.—A sewing-machine is provided with means for severing a strip of material from a sheet and bridging the gap so formed by stitching to the severed edges a strip of another material such as lace, braid &c. The machine is provided with means for turning down the raw edges so that they may be turned back by the stitching to form a neat edge, and means are provided for adjusting the feeding and stitch-forming mechanism to vary the width of the severed strip. The presser-foot 15 is formed with an extension serving as a guide for the strip to be attached and along which it is moved step by step by laterally-adjustable fingers 22 carried by a feed bar 21 reciprocated by a rocking lever 161, Fig. 17, engaging pins on the bar 21 and on the take-up arm 155 driven by a cam on the main shaft. A pair of folding-plungers 36 sliding in recesses at each side of the presser-foot are actuated at each descent of the needle to turn down at right angles the cut edges of the strip of material. In the arrangement shown in Fig. 2, these plungers are actuated by the engagement of the needle-holding nipple 43 with a rocking lever 41 carried by the presser-foot and connected by rods 45 to rods 47 engaging slots 48 in the plungers. In a modified arrangement the folders 36^a, Fig. 5, are stationary when in operation but are connected by links 55 to latches 57 pivoted on drop-leaves 59 which may be locked

in closed position by bolts 65 or moved by manipulating the latches to lift the folders out of operative position.

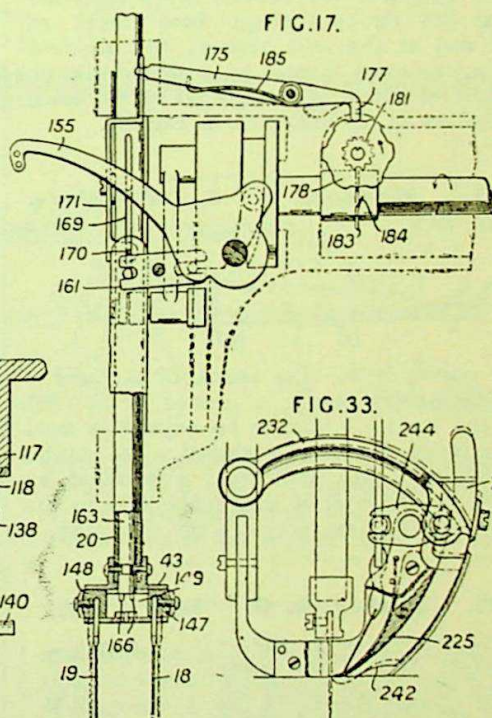
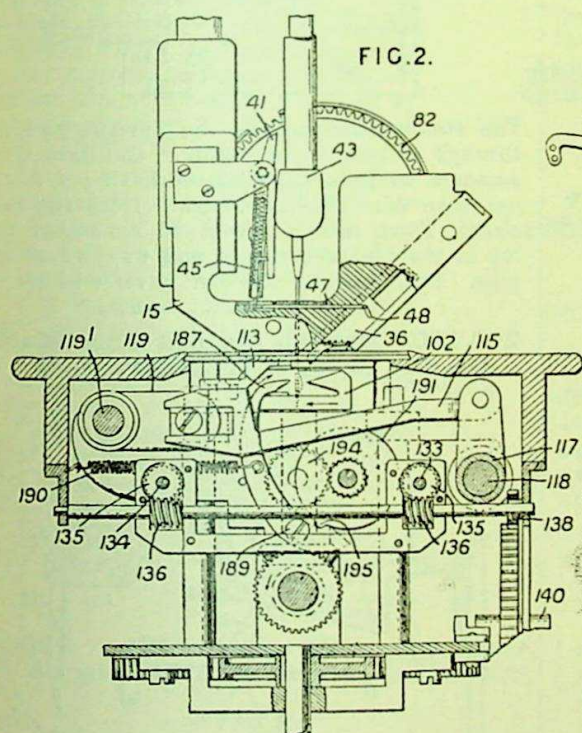
Trimming or cutting.—Strip-cutting knives 67 are mounted in guides adjacent to the folders and are connected by a pin-and-slot to the latches 57 so that they may be thrown out of gear similarly to the folders. The knives are actuated by bell-crank levers 74 pivoted on the presser engaging lugs 24 on the lace-feed arm 21 so that a cut is made at each up-stroke of the latter while the stitch is being formed. The knives 67 co-operate with fixed blades on the work-plate. In a modification shown in Fig. 33, the knives 242 are clamped in blocks 235 carried by an arm 232 pivoted on the presser-bar and are actuated by a rocking lever 244 engaged by a projection on the lace-feed bar.

Presser-foot.—Adjustment of the presser-foot to different widths is effected by means of a differential screw arrangement shown in Fig. 13 and comprising a member 78 fixed to the presser-bar engaged by a screw 79 turning in the part 15^a and into which enters a screw 81 of half the pitch secured to the part 15^b. A pinion 80 is mounted on the end of the screw 79 and is connected by a master gear 82, Figs. 2 and 5, to pinions 80 mounted on sleeves 79¹ engaging screws 81. A scale is provided to facilitate accurate adjustment of the foot-section.

Lock stitching by hooks.—Co-operating with the two jogging needles 18, 19 are rotary hooks 102, 103 driven in the same direction by bevel gearing 108 from a shaft 110 driven by a counter-shaft 112. These hooks engage the needle-thread directly in the outer strokes of the needles, but on the alternate inner strokes thread-catchers 187, 188 first engage the thread and carry it into the paths of the hooks. These thread-catchers

are mounted on pivots 189 and controlled by springs 190 by which they are held in the path of cam-teeth 195 on discs 191 driven by gears 194 from the shaft 112. The cams actuate the catchers on the alternate needle strokes. The hooks 102, 103, their associated thread-catchers and the throat-plates are mounted on adjustable blocks 120, 122 secured by binding screws 123 entering slots in the blocks. The screws may be loosened simultaneously by the manipulation of a hand-wheel which rotates a gear wheel in mesh with pinions on the screws. The adjustment of the blocks is effected by screws 133, 134, Fig. 2, rotated simultaneously by a screw-driver &c. applied to a shaft 140 acting through gearing 138, 136, 135.

Feed by dogs.—The feed dogs 113, 114 are independently actuated respectively by concentric rock-shafts 117, 118 connected to feed bars 115, the lift being controlled by arms 119 keyed on a rock-shaft 119¹. The arms 119 and 115 are

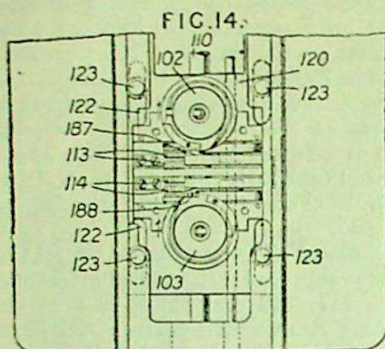


slidable on their rock-shafts so that the feed-dogs are adjusted when the blocks 120, 122 are adjusted. To assist the operator in guiding the work by means of a knee-lever or the like connected by suitable mechanism to produce differential movement of the feed dogs, an indicator is provided comprising an indicator arm 261, for tracing the line of the pattern, pivoted at 262, and connected by a link 263 to a pin 265 on a disc 266 geared to a shaft 270 which is connected to the knee-lever &c.

Needles vibrating laterally.—The needles 18, 19 are carried in blocks 147, 148 slidable in a thimble 43 secured to a tubular needle-bar 20. Inner extensions 149 of the blocks are formed with slots 150, Fig. 20, in which are engaged pins 166 formed on the rod of an inner rod 163

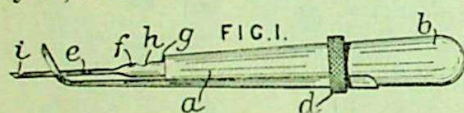
rotatable within, but reciprocating with, the needle-bar 20. The needles are caused to make their descents in alternate stroke in approximated and separated portions by the rotary oscillation of the rod 163 which is effected by means comprising a pin 170 which enters a straight slot 169 in the bar 20 and on alternate strokes is depressed to pass into a slot in the rod 163 having a portion inclined to the axis. The movement of the pin into the slot is effected by a lever 171 carrying the pin and engaged by a lever 175 the nose 177 of which is caused by a spring 185 to bear on the periphery of a cam 178. The cam is rotated by worm-gearing comprising a gear-wheel 181 and a worm 183 consisting of a single circumferential rib of which only the extremity 184 has an axial displacement. The needle-carrying

blocks 147, 148 are held steady by friction on those strokes during which the pin 170 is disengaged from the inner slot. Each block is formed in two parts relatively adjustable by screws 199 so that the distance apart of the needles may be adjusted in accordance with the width of the



strip. In operation the needles make their descents at one stroke through both pieces of material and at the next through the attached strip only, the cross threads so produced serving to draw up the raw edge of material turned down by the folders 36, as indicated in Fig. 28.

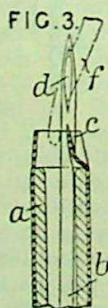
199,970. Hanson, C. J. Whistler.
July 27, 1922.



Hand sewing-tools.—The shank of a guard *a* for an embroidery needle is formed to lie flat against the handle *b* and to be adjustably held by the wedging action of a ring *d*. The needle *c* has a butt *f* with abutments *g* punched up therefrom by which it is adjustably held in the handle. Eyes *h*, *i* are provided for threading.

199,987. Porter, R. O. Sept. 4, 1922.

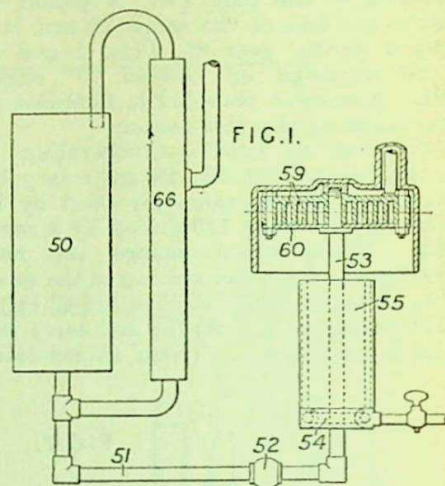
Turning articles inside out.—Dressmakers' pipings and other trimmings are turned inside out with the aid of a tube *a* and a hooked rod *b*. The tube is inserted in the trimming and the rod is pushed up the tube and engages a projecting part of the trimming, which is then pulled backwards through the tube. An eye in the rod *b* serves for inserting padding *f* in the trimming.



200,043. Hawkins, G. T., and Jones, R. M. Jan. 3, 1922.

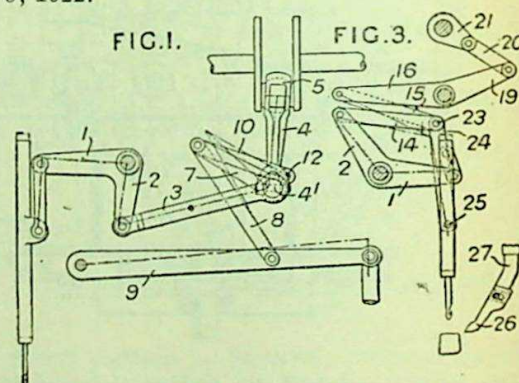
Sewing-machines; waxing-thread.—In a boot-sole or leather sewing-machine using waxed or like thread, steam for heating the wax pot &c. is generated in a boiler so constructed that the boiler holds only sufficient water for supplying steam for a short time, the water being auto-

matically fed by gravity from an open receptacle through a check valve. The steam is superheated. Water flows from a receptacle 50 through a pipe 51 containing a check valve 52 into an upright pipe 53 surrounded by a gas ring 54, which supports an asbestos lined chimney 55.



The steam generated in the upright pipe passes through a slot in its upper end into circular passages 59 in a superheater having a thin copper base 60. The condensate from the heating circuit flows into a vessel 66 connected to the top of the feed receptacle and to the feed-supply pipe. Specification 3504/87 is referred to.

200,180. British United Shoe Machinery Co., Ltd., and Morley, D. W. April 5, 1922.



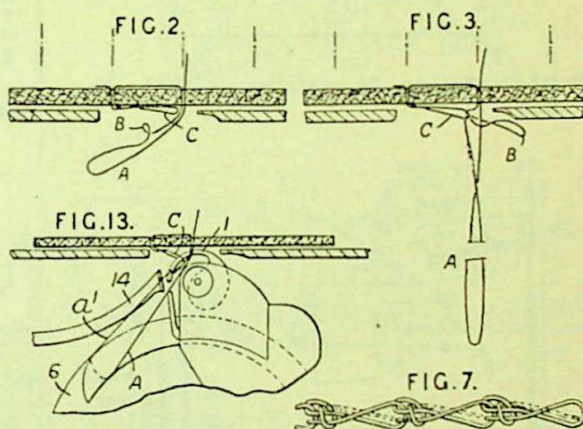
Chain-stitching machines; needles, driving; presser-feet.—In a barbed-needle shoe-sole sewing-machine of the type described in Specifications 163,456 and 163,967, the movement of the shoe-entering work-support to caliper the work varies both the upper and lower limits of the needle-stroke. The needle-bar operating bell-crank lever 1, 2, Fig. 1, is actuated through a link 3 and a connecting-rod 4, universally jointed at both ends, from the main shaft crank 5. The needle-bar moves at its slowest rate when at the bottom of its stroke since the crank 5 is then in its uppermost position, thus allowing the use of a looper rotating twice for each needle reciprocation instead of three times as in the machines of the above-mentioned Specifications. The connec-

tion 4' of the link 3 and the rod 4 is connected by a link 7 to links 8, 10, the other ends of which are pivoted to the work-support-controlled lever 9 and a frame-pivot 12 respectively. When the lever 9 is raised owing to increased thickness of the work, the lower limit of the needle-stroke is lowered by substantially the same amount as the work-thickness has increased while the upper limit is raised to a lesser degree. Notwithstanding the automatic variation of the needle stroke, the needle is at all times under positive control. The connections are so arranged that the work-piercing descent of the needle causes an opposed thrust of the support on the work. In a modification, the universal connection between the cranks and the rod 4 is avoided, the mechanism lying across the machine instead of lengthwise

thereof. The needle-actuating bell-crank lever 1, 2, Fig. 3, is connected by links 14, 15 to a bell-crank lever 16, 19 pivoted to the frame. The lever-arm 19 is connected by a link 20 to the crank 21. Universally connected to the connecting-point 23 of the links 14, 15 is a link 24 universally connected at 25 to the work-support-controlled lever, the pivot 25 being lowered as the work-thickness increases. The presser-foot 26 has a tongue-and-groove connection with the bar 27, so arranged that on adjusting the foot towards the sewing-point when the feed is shortened, the presser-foot is raised and consequently the length of loop drawn above the work by the needle is also shortened to the extent required by the alteration in feed.

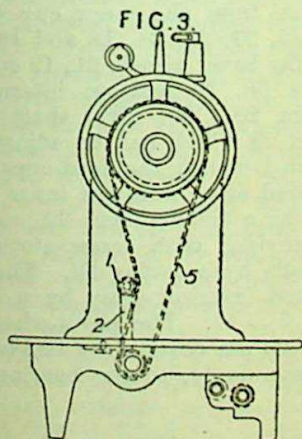
200,536. Baker, F. Jan. 17, 1922.

Stitches; sewing-machines; loop stitching.—A single thread locked loop-stitch, Fig. 7, is formed by drawing out a subsidiary loop B, Fig. 2, from one arm of the loop A formed by the needle, passing the loop B through the loop C, Fig. 3, projecting from the last stitch, twisting the main loop A and passing it over and tightening it upon the root of the loop B. The loop B then lies ready for engagement in the next stitch. The stitch can be made by means of an adaptation of a rotary lock-stitch shuttle mechanism and the mechanism readily re-converted for lock-stitching. In one form of mechanism shown in Fig. 3, the last loop C is penetrated by a curved looper 1 actuated by a rack-bar and one limb a' of the needle-loop is bent round the notched end of the looper by a part 14. The looper is then withdrawn and carries a subsidiary loop formed in the needle-thread loop through the loop C. The



main needle-thread loop A is then carried round by the part 6, which is an adapted rotary shuttle with its spool case, and slips over the back of the looper 1 on to the root of the subsidiary loop.

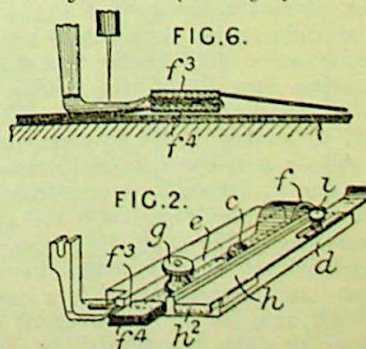
200,694. Mitchell, W., Faulkner, J. A., and Latimer, A. L. July 8, 1922.



Sewing-machines; upper and lower shafts, connecting.—A perforated belt 5 which engages

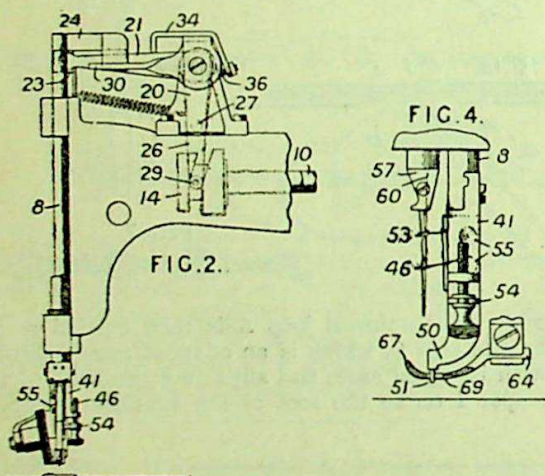
sprocket-wheels on the needle-shaft and the hook-shaft of a sewing-machine is tensioned by means of a roller 1 on a spring-pressed supporting arm 2.

200,713. Friesner, L. July 28, 1922.
No Patent granted (Sealing fee not paid).



Sewing-machines; braids and the like, attaching.—A device for guiding and tensioning tape used in binding seams &c. comprises a pair of relatively adjustable arms, the end of each arm being bent back on itself. The arms are formed from a strip of spring steel *f* doubled on itself, each arm being bent back at *f*³ and *f*⁴ to receive the tape which is passed through the loops so formed and between the arms as shown in Fig. 6. The arms are secured in a groove *e* in a plate *d* by a screw *c* entering a slot in the arms to allow longitudinal adjustment. The relative tensioning adjustment of the arms is effected by a clamping bolt *g*. A guide or gauge such as *h* having a turned-over end *h*² to engage the tape may be associated with the tensioning means and is adjustably held on the plate *d* by a bolt *i* so that it may be brought into action alternatively with the tensioning means.

200,751. Imrie, H., (Mathey, N. W.). Nov. 4, 1922.

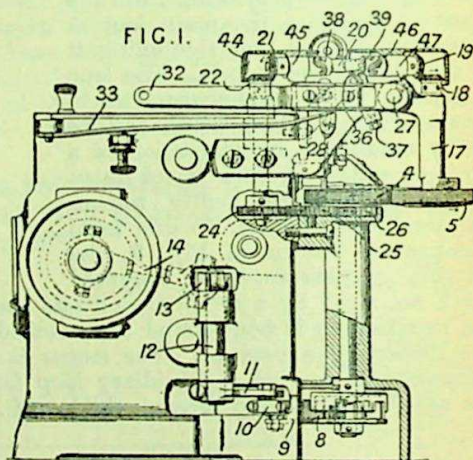


Sewing-machines; perforating devices.—Ornamental perforations between two parallel lines of stitches are made simultaneously with the stitching. One or more punches 51, Fig. 4, are carried by a holder 50 which is adjustably secured upon a punch-bar 8 and shaped so as to bring the punches close to the stitching point. Punch-holders are interchangeable, are positioned upon the stock 41 of the bar 8 by a flange 53 and a surface at right-angles thereto, are adjusted vertically by a screw 46 screwing into the stock 41 and engaging ears 54 on the holder, and are secured in position by screws 55. The needle-holder 57 is slotted at 60 to clear the punch-holder. The punch-bar 8 is reciprocated from a shaft 10, Fig. 2, driven by a gear-train of two to one or other greater ratio from the main shaft of the machine. The shaft 10 carries a cam 14 with which a lever 26 engages and the oscillations of the lever 26 are transmitted to a lever 20 by a pin 27. An arm 21 of the lever 20 engages a block 23 which slides transversely in a slot in the

punch-bar and a forked part 24 of the punch-bar embraces the arm 21 to prevent the bar 8 from turning. The punch-actuating gear may be thrown out of action by sliding the lever 26 and its supporting shaft axially until the bowl 29 is free of the cam. This movement is permitted by the pin connection 27 with the lever 20 and is effected by a handle 30. When the lever 26 is thus disengaged a stop 36 determines the position of the mechanism. To avoid defective action of the punch due to slackness in the pin-joints, an arm 34 integral with the lever 26 is arranged to contact with the lever-arm 21 and determine positively the lowest point in the punch stroke. The punches co-operate with an anvil in the work-plate.

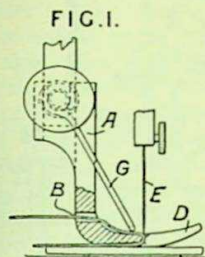
Presser-foot.—A slot 69, Fig. 4, on the underside of the presser-foot 64 guides away any punchings that may remain on the surface of the work. The presser is narrow and has a pointed up-turned toe 67.

201,096. Thompson, W. P., (Union Special Machine Co.). Dec. 2, 1922.



Overhead-sewing machines.—The outer feed-cup 5 is carried by a bracket 17 pivoted at 27 and is driven from the inner cup 4 by toothed wheels 26, 25, 24, 22, 21, 19 and 18. The shaft connecting the bevel wheels 21, 19 comprises universal joints 38, 39 and an intermediate telescopic portion 20. The pivot shaft 27 is carried by a bracket 28 which can be adjusted bodily to vary the gap between the feed-cups. The outer cup 5 is moved away from the inner cup 4 during normal use by a treadle-lever 32, secured on the shaft 27, provided with screw stops 36, 37 and urged upwards by a spring 33. The inner feed-cup is rotated intermittently by a clutch 8 and mechanism 9-14. The bevel-wheel and joints of the shaft 20 are covered by two casings 44, 46 secured, respectively, to the bearings 45, 47.

201,230. **Zamechick, L., and Turner, E.**
April 25, 1922. No Patent granted (Sealing fee
not paid).



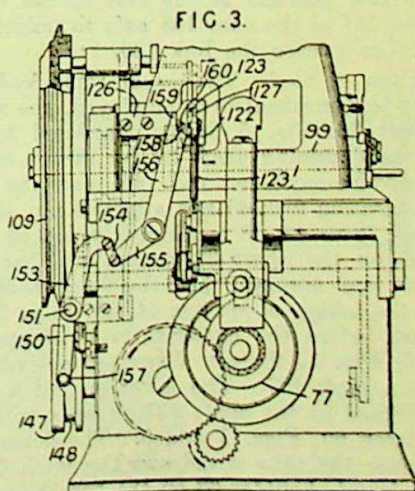
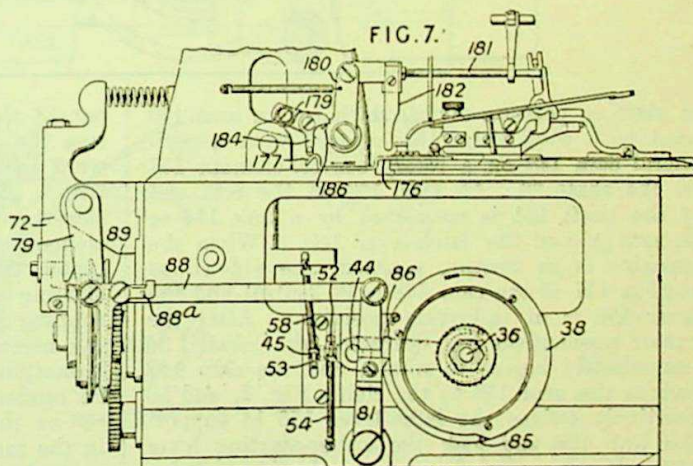
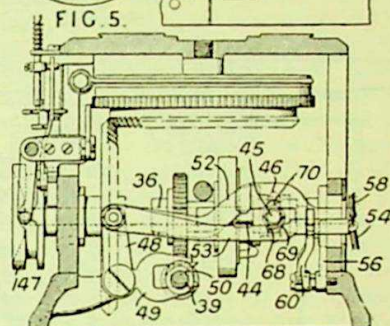
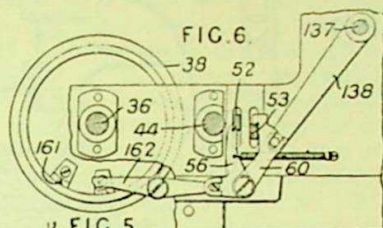
Blind-stitching, attachments for; presser-feet.
—In an attachment for sewing machines whereby braid or the like can be blind-stitched to cloth, the braid is passed face downwards through a hole B in the shank of the presser-foot A and is then turned down between the toes D and back beneath the foot A. The needle E passes through the braid without piercing the face. A bent rod G secured to the foot A presses on the back of the braid as shown.

Button-hole sewing-machines.

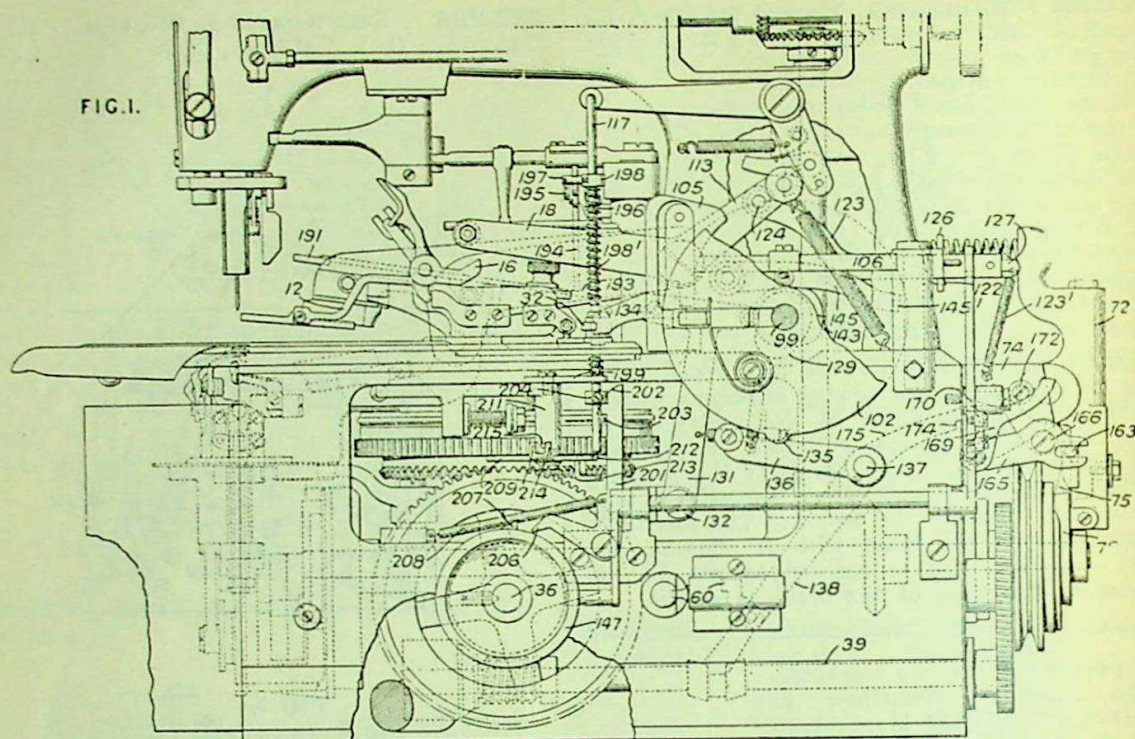
—The machine described in Specification 183,873 is re-organized so that it will operate to cut the button-hole prior to stitching, and improved means are provided for preventing accidental operation of the clutch for the button-hole cutting—means except when the button-hole working mechanism is in a safe position. Specification 179,278 is referred to.

Button-holes, cutting. Actuation of the starting rod 117, Fig. 1, transmits a single to-and-fro movement to a two-armed lever 18, 113 in the usual manner. As the arm 18 is depressed, a tooth 122 on a link 123, which is pivoted at 124 to the arm 113, is drawn forward and drops under the influence of a spring 123' in front of a shoulder on a lateral arm 126 of the usual controlling lever 106 for the cutter-shaft clutch. The tooth 122 is formed on a plate 127 adjustably fixed to the arm 113. During the return movement of the arm 18, the tooth 122 pushes the arm 126 rearwardly thereby shifting the lever 106 and its latch-plate 105 inwardly to clutch the cutter-shaft 99, Fig. 3, to the continuously-running pulley 109 for one revolution. A cam 143 on the shaft 99, Fig. 1, lifts a lever 145 pivoted to the machine-standard so that a lateral extension 145' thereof lifts the link 123 out of engagement with the arm 126. The usual cam on the hub of the driven disk 102 of the cutter-shaft clutch device restores the bell crank-lever 106, 126 to initial position for arresting the rotation of the cutter-shaft. When the link 123 is lifted the shoulder 158 of a latch lever 156, Fig. 3, as described in Specification 197,463, swings underneath the link 123 to hold it in ineffective position, and an

201,298. **Fairweather, W.,** (Singer Manufacturing Co.). May 16, 1922.



extension 159 of the lever 156 is positioned in rear of a pin 160 on the arm 126, blocking possible accidental movement of the lever 106, 126,



to starting position during sewing. An arm 150 fixed to a rock-shaft 151 engages with a peripheral cam 148 on a rotary control-element 147 on the shaft 36. An arm 153 on the rear end of the shaft 151 is connected by a link 154 to an arm 155 of the latch-lever 156. When the machine is in starting position, the side-throw portion 157 of the cam 148 is in control and the lever 156 is in unlocking position. After the cutter mechanism has operated, the shaft 36 immediately begins to rotate, and the cam 148 swings the arm 150 to the right, Fig. 3, and so positively swings the latch-lever 156 to support the link 123 and lock the cutter-starting lever 126. As the stitch-forming mechanisms arrive at their safe position at the end of the cycle, the offset 157 of the cam 148 acts to unlock the lever 126 to release the link 123.

Actuation of feed. The usual rapid-feed and stitching-feed mechanism is employed, the rapid-feed shaft 36, Fig. 5, being connected to the continuously-running shaft 39 by means of the usual endwise-movable rod 44 carrying the clutch-operating fork 46 and a lateral pin 45. A bell-crank lever 49, 48 continuously rocked by a crank 50 on the shaft 39 reciprocates bars 52, 53 which are normally held by latches 56, 60 against the action of springs 54, 58, Figs. 5 and 7. Just before the cutter-shaft is stopped, a cam 135, Fig. 1, thereon depresses a lever 136 fixed to a shaft 137. The lower end of a lever 138 also fixed to the shaft 137 engages with the slotted latch 60, Figs. 1 and 5. The depression of the lever 136 thus withdraws the latch 60, so that an abrupt shoulder 68 on the bar 53 engages with the pin 45 on the clutch-actuating rod 44 and pushes it to the right, thus starting the rapid feed to shift the work from cutting to sewing position. On the return-motion of the

bar 53 the inclined shoulder 69 thereon encounters the pin 45 which forces the bar 53 downward so that the latch 60 again engages therewith. When stitching position is reached the cam-rise 85, Fig. 7, on the usual auxiliary cam-element 38 fixed to the rapid feed shaft 36 initiates through the members 81, 88, 89, 79 the shifting of the usual stop-motion lever 72 to running position, thus starting the stitch-forming mechanism. The link 88, 89 is of toggle formation, so that the starting-connection may be rendered inoperative. A spring-pressed pin 88^a on the link 88 yieldingly engages in a recess in the member 89. At the same time a tripping point 161, Fig. 6, on the inner face of the element 38 lifts a lever 162 which in turn withdraws the latch 56 from beneath the bar 52. A shoulder 70, Fig. 5, on the bar 52 thereupon shifts the pin 45 to the left thus declutching the rapid-feed. The bar 53 is raised on the return motion and the latch 56 again engages therewith. At the completion of sewing, the cam-declivity 86 on the element 38, Fig. 7, allows the stop-motion lever 72 to return to stopping position. The stop-motion tooth 75, Fig. 1, has fixed thereto a lateral pin 163 which engages with a slotted lever 165 pivoted at 166 to the bracket 74. A lever 169 pivoted to the lever 165 is yieldingly held against a fixed pin 172. When the tooth 75 rides up the cam-rise 78 a tooth 170 on the lever 169 snaps under a shoulder 174 of an arm 175 fixed to the shaft 137. When the tooth 75 drops into the stop-notch of the cam 77 the tooth 170 rocks the arm 175 and with it the lever 138 and the latch 60 to start the rapid-feed and return the work from sewing to cutting position.

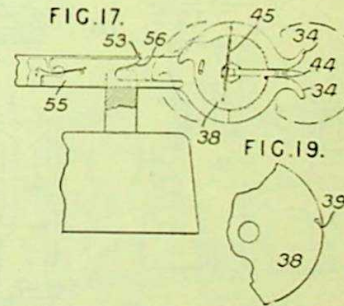
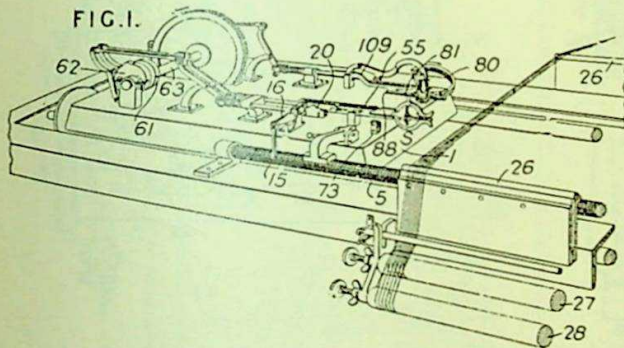
Clamps, closing, spreading, opening. The work holder is of the type described in Specifi-

cations 10039/14 and 183,873. The anti-clockwise movement of the arm 18, Fig. 1, actuates the lever 16 to close the work-clamp. A lever 131 pivoted at 132 to the frame is rocked by a cam 129 on the cutter-shaft after cutting has taken place so that the end 134 of the lever pushes forward the lever 32 of the usual toggle-mechanism to spread the work-clamp. The extremity of a bar 176, Fig. 7, fixed to the work-holder is bent to form a cam-incline 177. One arm 170 of a bell-crank lever 179, 180 pivoted to the machine standard is connected to the usual clamp-opening push-rod 181 from which depends the unspreading arm 182. A lever 184 pivoted to the arm 169 is yieldingly held against a pin 186 thereon. Rearward motion of the work-holder from sewing to cutting position rocks the lever 179, 180 to push forward the rod 181, thus opening and unspreading the work-clamp.

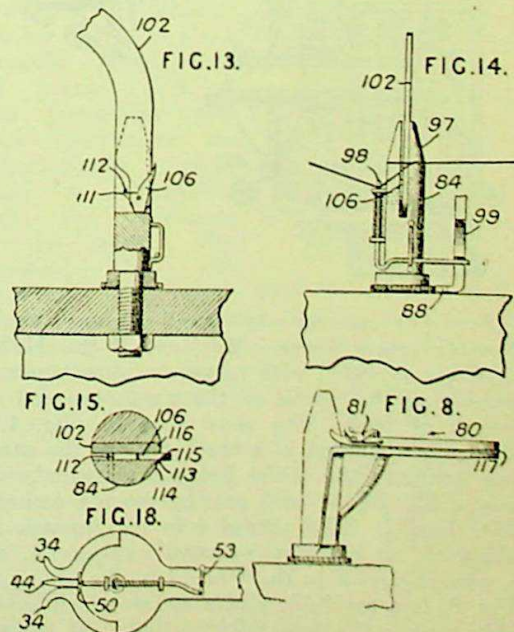
Starting and stopping gear. The starting-rod 117, Fig. 1, may be operated by a finger-lever 191, pivoted to the fulcrum-block of the left-hand clamp-lever 12. The end 193 of the lever 191 extends under and rocks a lever 194 pivoted at

195 to a bracket 196 on the frame. The lever 194 is forked at its upper end to embrace a pin 197 carried by a collar 198 fixed to the starting-rod. A returning-spring 198¹ is disposed on the rod 117 between the collar 198 and a guide-bracket 199 on the frame. A latch-lever 201 pivoted to the frame has an inclined end 202 and a latching-shoulder 203 adapted to engage, under the influence of a spring 208, a pin 204 on the starting-rod and hold the latter in starting position. An arm 206 of the lever 201 is tripped just before the machine stops by a tripping point 207 on the control element 147 to release the starting-rod. Downward movement of the rod 117 is limited by a finger-operated stop-lever 209 pivoted to a bracket 211 on the frame. The lever 209 which is bifurcated to provide offset stop arms 212, 213 at different levels, can be swung on its pivot to position either arm beneath the starting-rod so as to prevent respectively starting of the machine and excessive motion of the starting-rod. The lever 209 is positioned by means of stop-prongs 214 thereon and a stop-pin 215 on the bracket 211.

201,598. Eanes, H. P. April 3, 1922.

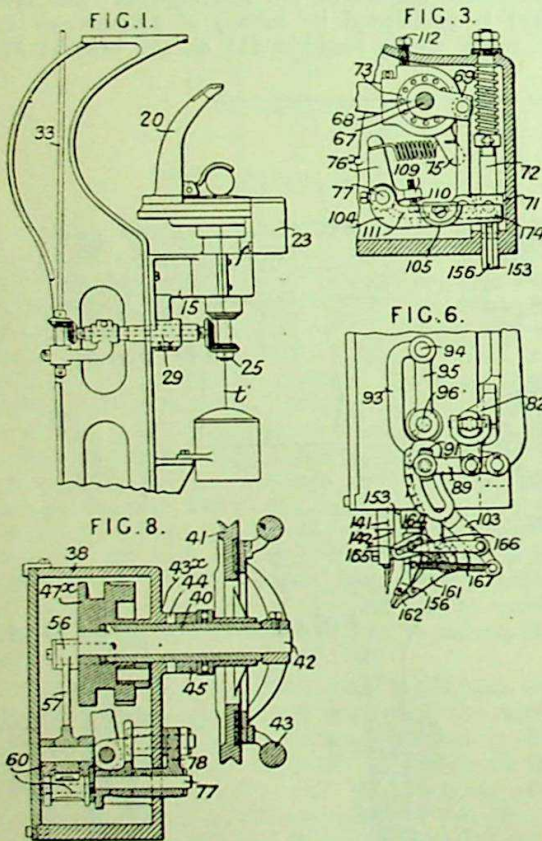


Knot-tying devices.—Two sheets of warps to be tied together are passed respectively over and under rubber fillets 26 and secured to tension rollers 27, 28. The carriage 1 carrying the tying-mechanism is intermittently advanced a distance corresponding to the warp thickness by means of a lead-screw 5 which is grooved longitudinally and engaged by a pawl 15 operated by a lever 16 and an adjustable cam 20 which is reciprocated by an eccentric 62 on the main shaft 63. When the selector S is advanced by the eccentric 61, a tongue 44, Figs. 17 and 18, passes between the sheets of warps which enter the groove between the fingers 34 and push back a double ended pivoted trip 50 and thus lower a trigger 53 into the path of a cam 56 on a slide 55. When the slide 55 is advanced by the eccentric 62, its front pivoted part is lifted by the trigger 53 and it, in conjunction with a spring 45, rotates a disc 38 having a bill 39 which separates one upper and one lower warp which are cut by the knife 73 on the return of the selector. The separated warps have meanwhile been brought under a catch 81 on the shuttle 80 which is rotated by a rack 88 and



eccentric on the main shaft 63 to wind the two warps round the base of the tapered part 97, Fig. 14, of a slotted post 84, Figs. 14 and 15, the warps being crossed by a depressor 98 operated by a cam 99 moving with the rack bar 88 and the crossed warps drawn through the loop by a latch 106 on the stripper-arm 102 which is operated by a second cam 109 moving with the rack bar 88. When the arm 102 is lifted, a pin 112 on the post 84 engages the tail 111 of the latch which is thereby tilted and grips the warps between the rounded edges 115, 116 of the latch and arm, but cuts the threads between the knife-edges 113, 114 of the latch and post 84. During the tightening of the knot, the warps are tensioned in the slot 117 of the shuttle.

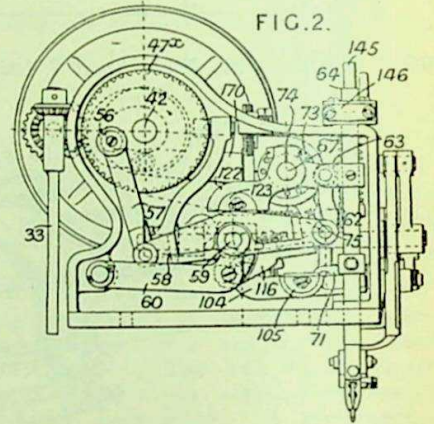
201,997. Pearson, W. May 4, 1922.



Boot-sole sewing-machines; driving; waxing thread; rotary horns.—Machines of the McKay type are provided with means for simultaneously regulating the stroke of the needle-bar and the length of feed. The usual horn 20, Fig. 1, is revolvably mounted in a bracket 15 on the machine column, the whirl being actuated through shafts 25, 29, 33 and gearing from a cam-disc 47^x, Fig. 2. The thread *t* is led through the shaft 25, an electrically-heated wax-pot 23, and a tension-device to the whirl. In the casing 38, Fig. 8, is a revoluble sleeve 40, on which is slidably mounted a power-driven pulley 41. On a

shaft 42 revolvably mounted in the sleeve 40 is fixed a hand-wheel 43, while to the inner end thereof is fixed the cam-disc 47^x. Inclined teeth 41 on a boss 43^x on the casing engage similar teeth on a treadle-oscillated collar 45 loosely mounted on the sleeve 40. Oscillation of the collar 45 operates the clutch to drive the shaft 42.

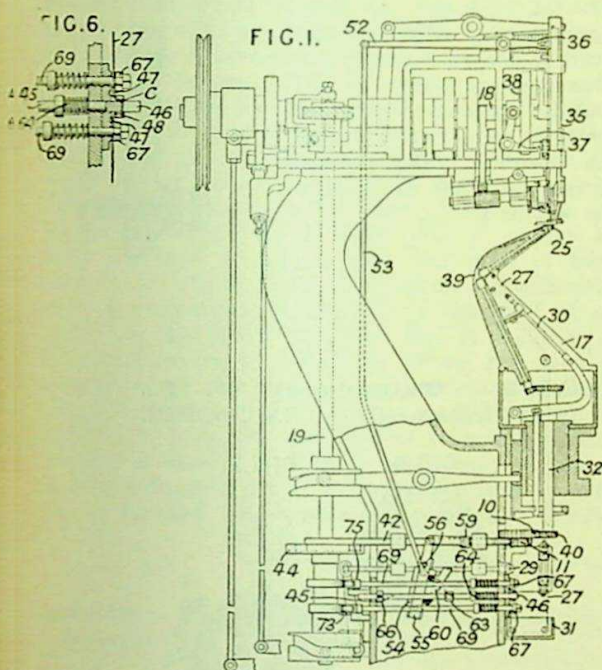
Chain-stitching; presser-bars with periodic control; feed by devices engaging the upper surface of the work.—A link 57, Fig. 2, is pivoted to a pin 56 on the disc 47^x and to a rocker-lever 58, which is pivoted at 59 to an L-shaped lever 60 mounted on the casing. A link 62 connects the lever 58 to a collar 63 on the needle-bar 64. The hub 68, Fig. 3, of a lever 69 is loosely mounted on a stud 67, Fig. 2, fixed to the casing, and is link-connected to a collar 71 on the presser-bar 72. Round a nut 73, which is adjustably mounted on the threaded hub 68, is adjustably clamped an arm 75, which is spring-connected to an arm 76^x, Fig. 3, loosely mounted on a shaft 77. The shaft 77 is mounted in a lever 78, Fig. 8, and oscillates in a slot in the



casing. The end 82, Fig. 6, of the lever 78 is universally link-connected to an arm 89 pivoted to the casing. A clock 91 on the arm 89 travels in a slotted link 93, which is pivoted at 94 to a lever 95. A shaft 96 on which the lever 95 is mounted is oscillated from the disc 47^x. An arm 104 fixed to the shaft 77 carries a pivoted block 105. A screw 110 adjustable in a lug 109 of the arm 76^x bears on a lug 111 of the arm 104. The lever 75 is limited in movement by a screw 112, Fig. 3. A plate 116 adjustably clamped to the lever 60 coacts with the block 105 to define the upward movement of the needle-bar. A block 123 pivoted in an arm 122 adjustably clamped to the stud 67 coacts with the lever 60 to define the downward movement of the needle-bar. The needle-bar is grooved at 141, Fig. 6, to receive a spring-pressed stripper-bar 142, the upper end of which has a lost-motion connection with a member 145, Fig. 2, which, together with the needle-bar, passes through a cast-off block 146. In a block 153 on the presser-bar is slidably pivoted a feed-lever 156, Fig. 6, spring-connected to an extension 103 of the link 93. The block 153 has an extension 161 in which is mounted the presser-foot 162. To the block 153 are

secured cam-plates 164 each having a slot 165 through which passes a pin 166 on the feed-lever. A link 167 connects the pin 166 and the member 103. A lever 170, Fig. 2, mounted on the threaded hub 68, Fig. 3, is oscillated from the cam-disc 47^x, to engage the nut 73 and raise the presser-bar. The descent of the presser-bar does not actuate the nut 73. The end 174 of the arm 104 bears on the block 153, and helps to lock the lever 170 to the nut 73. Adjustment of the member 89 simultaneously alters the feed and the position of the block 105, thus altering the needle-bar stroke.

202,223. **Reed, J. H., and Little Co., A. E.** Jan. 9, 1923.



Lock-stitching by shuttles. — A shoe-sewing machine having a straight barbed needle and a shuttle on one side of the work, and a horn containing a whirl on the other side, is provided with a stitch-measuring device controlled by a work-engaging member. Specification 210,360 is referred to.

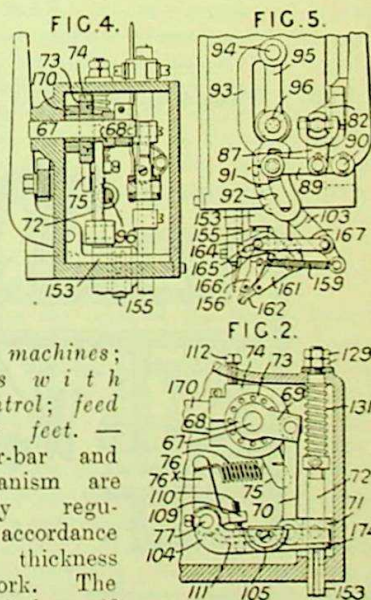
Rotary horns. — A whirl 25 in the rotary horn 17 is driven through shafts 39, 32 and gears 40, 10, 11 from a rack-bar 42, which is reciprocated by a cam 44 on a vertical shaft 19. The shaft 19 is geared to a power-driven needle-actuating shaft 18.

Governing needle thread. — The thread 27 passes from supply through a thread-clamp 67, a pull-off 46, a second thread-clamp 67, and a wax-pot 31, over a take-up 29 and through the hollow shaft 32 to a stitch-setter 30 and the whirl 25. The pull-off comprises a rod 45 longitudinally movable in the frame and normally held by a spring 64 with its thread-engaging notch 46, Fig. 6, in line with thread guide-holes 47 in a boss 48 on the frame. A collar 66, Fig. 1, on the rod

45 limits its movement to the left. A slide 54, mounted on a lever 55 pivoted at 56 to a fixed support, is connected by a link 53 to a lever 52 which is pivoted to the presser-bar 35. When the lever 55 is oscillated by a link connection to a lug 59 on the rack-bar 42, a plate 60 adjustably fixed to the slide 54 engages a collar 63 on the pull-off rod 45, and moves the rod a distance depending on the position of the slide 54 and the adjustment of the plate 60 thereon. The boss 48 is suitably cut away at C to prevent injury to the thread. The position of the slide 54 is automatically controlled through its connection to the presser-bar by the thickness of the work while the plate 60 is manually adjusted in accordance with the length of the stitch. The thread-clamps 67 comprise blocks fixed to the ends of spring-pressed rods 69, and are periodically alternately opened through cam-operated levers 73.

Presser-bars with periodic control. — The presser-bar 35 is normally pressed down by a spring 36, but is lifted to permit the work to be fed by a bell-crank lever 37 actuated by a cam 38 on the shaft 18.

202,245. **Pearson, W.** May 4, 1922.



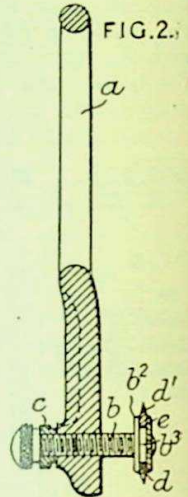
Sewing machines; presser-bars with periodic control; feed by presser feet. — The presser-bar and feed-mechanism are automatically regulated in accordance with the thickness of the work. The threaded hub 68 of a lever 69 is loosely mounted on a stud 67, Fig. 2, fixed to the casings, and is link-connected to a collar 71 on the presser-bar 72. A nut 73 is adjustably mounted on the hub 68, and the split hub of an arm 75 is adjustably clamped around the nut 73. The arm 75 is spring-connected to an arm 76^x loosely mounted on a shaft 77 to which is fixed an arm 104, the end 174 of which bears on a block 153 on the presser-bar. A screw 110 adjustable in a lug 109 of the arm 76^x bears on a lug 111 of the arm 104. The hub 74 of the lever 75 is limited in rotation by a screw 112, Fig. 2. A lever 170 pivoted on the threaded hub 68, Fig.

4 is oscillated by a cam so that it moves axially into locking engagement with the nut 73. Further rotation of the lever 170 acts through the lever 69 to lift the presser-bar. When the presser-bar is lowered under the influence of a spring 131, the hub 68 is turned in a clockwise direction, Fig. 2. The hub of the lever 170 and also the nut 73 are, however, held from rotation therewith so that their relative positions and therefore the lift of the presser-bar are unaltered by alteration in the work-thickness. The shaft 77 is mounted in a short arm of a lever pivoted to the casing, the end 82, Fig. 5, of which extends in front of the casing. The movement of the lever 82 is limited by a stud on the casing engaging a slot therein. A link universally jointed to the lever 82 is pivoted at its other end to an arm 89 fulcrumed on the casing. A block 91 on the free end of the arm 89 engages a slot 92 in a link 93 pivoted to a lever 95 fixed to a cam-actuated shaft 96. In the block 153 on the presser-bar, Fig. 5, is slidably fulcrumed a lever 155 to the lower end of which is secured the work-feeding member 156. A spring 159 connects the member 156 to an extension 103 of the link 93. To the block 153 are secured cam-plates 164 each having a slot 165 through which passes the securing-pin 166 for the member 156. A link connects the pin 166 and the member 103. Specification 201,997 is referred to.

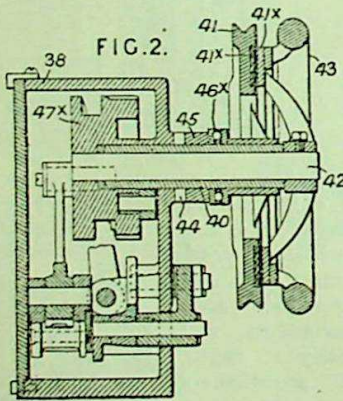
collar 45 and the pulley. The inner end of the sleeve 40 is disposed in a cylindrical cavity in the cam-disc 47^x. Specification 201,997 is referred to.

202,813. Edridge, A. July 20, 1922.

Marking work for sewing; awls.—A screwed spindle *b*, adjustably mounted in a handle *a*, carries on a shoulder *b*² and between a flange *b*² and a disc *c* a wheel *d* which has a number of awl-points *d*¹ thereon. The lower part of the handle *a* rests against the edge of the work while the wheel *d* is traversed to form a uniformly spaced series of holes in which rivets may be inserted. The spindle *d* can be fixed in position by a lock-nut *c*.

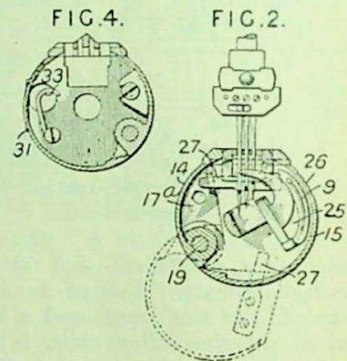


202,246. Pearson, W. May 4, 1922.



Sewing-machines; starting and stopping gear.—In the side of the casing 38 of a sewing-machine or the like is journaled a revoluble sleeve 40, on which is slidably mounted a power-driven pulley 41. On a shaft 42 revolubly mounted in the sleeve 40 is fixed a hand-wheel 43, while to its inner end is fixed a cam-disc 47^x. Inclined teeth 44 on the casing engage similar teeth on a collar 45, which is loosely mounted on the sleeve 40 and can be oscillated by treadle means, whereby the collar 45, and with it the pulley 41, may be moved along the sleeve 40, thus forcing friction rings 41^x on the pulley and the hand-wheel into driving engagement. An antifriction device 46^x is mounted on the sleeve 40 between the

202,898. Thompson, W. P., (Union Special Machine Co.). Dec. 6, 1922.

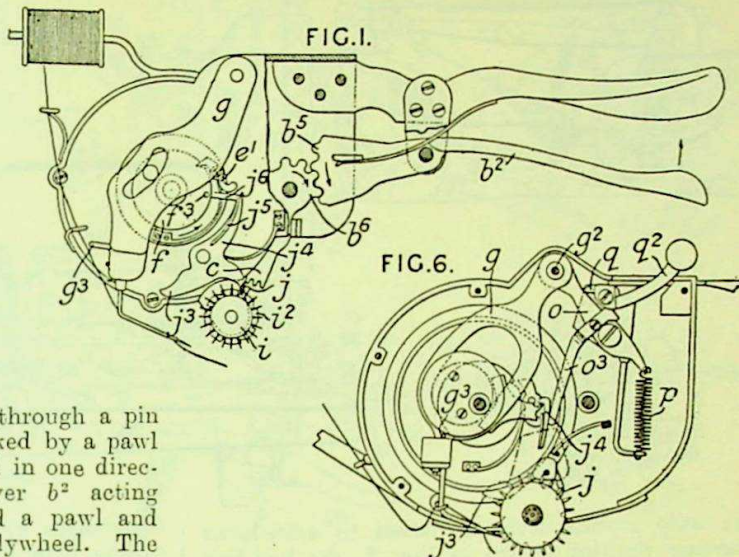


Sewing-machines; frames.—The terminal portion of a tubular work-arm enclosing the looper &c. is formed in two parts, one part 14 being fixed to the body of the work-arm and the other part 15 pivoted to turn about an axis parallel to that of the work-arm. The section 14 is secured to the arm by a bolt entering a slotted flange. The section 15 is connected to the section 14 by a pivot 19 entering lugs in the two sections and is latched in closed position by a catch 27 which may be forcibly disengaged by pressure applied to a thumb-hold 26 on the section 15. The sections are formed with end flanges 17^a, 25 which close the end of the work-arm. Thread is led to the threaded looper 9 along a slot in the work-arm closed by a plate 31 and guided by a wire 33 to the heel of the looper.

202,974. Venditti, G.

Aug. 26, 1922, [Convention date]. Addition to 185,401.

Hand sewing-tools.—The pawl for locking the spiked supporting wheels against rotation while the needle makes its stroke as described in the parent Specification is released by a member on the needle-supporting arm itself and also has a third arm which effects the disconnection of the needle-operating disc from the flywheel. Arrangements are also provided for disengaging the needle from the fabric and for varying the length of stitch. The needle-carrying arm *g* is actuated through a pin and slot connection by a disc *f* locked by a pawl *e'* to rotate with a flywheel rotated in one direction by the movement of a lever *b²* acting through sector gears *b⁵*, *b⁶*, *c* and a pawl and ratchet-wheel on the shaft of the flywheel. The arm *g* carries a projection *g³* which at the forward end of the needle stroke engages an arm *j³* of a three armed pawl, another arm *j* of which engages a ratchet-wheel *i²* fast on the shaft of the spiked wheels *i*. A third arm *j⁴* carries a ramp *j⁵* which is moved into the path of the pawl *e'* to lift it from its locking engagement while a projection *j⁶* comes into the path of a stud *f'* on the disc *f* so as to stop it positively. When means are provided for lifting the needle from the work the pivot *q²* of the slotted needle-arm *g* is mounted on a lever *o* constrained by a spring *p* to keep the needle arm in a withdrawn position as shown in Fig. 6. A cam *q* is operated by a finger-lever *q²* to move the lever *o* and arm *g* forward into operative position. When

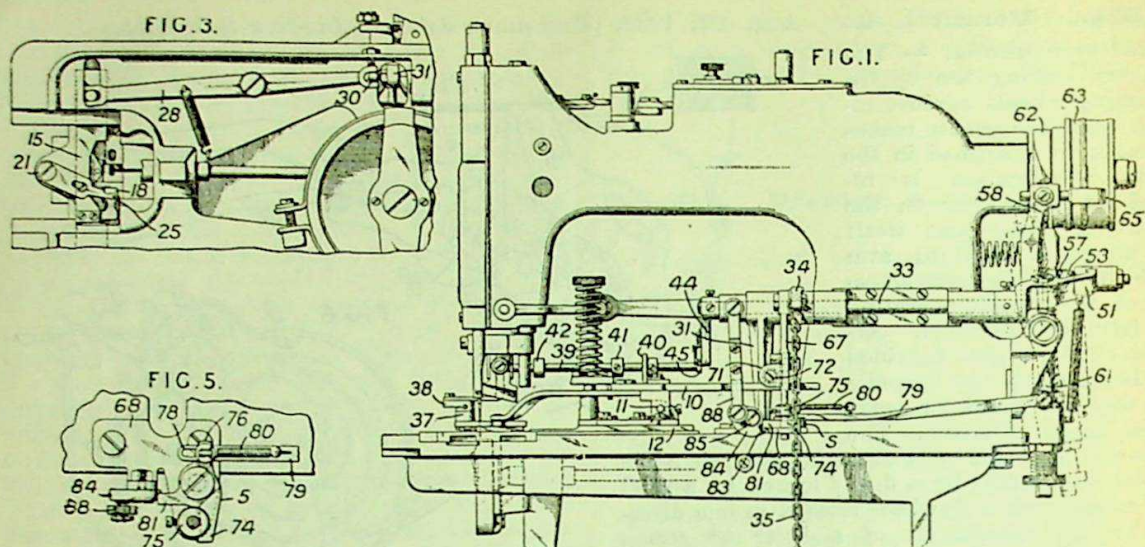


the needle is in withdrawn position the movement of the apparatus over the material is allowed owing to the lifting of the pawl *j* by the engagement with the pawl-arm *j⁴* of a finger *o³* on the lever *o*. Variation of the length of stitch is effected by the employment of a ratchet having half the number of notches of the ratchet *i²* and axially movable so that it may mask alternate notches of the ratchet *i²*, thus doubling the period during which the spiker wheels *i* are locked. The material to be stitched is placed on a board supporting a piece of sheet metal covered by a layer of swan-skin and a piece of cloth.

203,359. Fairweather, W., (Singer Manufacturing Co.). March 9, 1922.

Button-hole sewing-machines; thread-cutters; starting and stopping gears; lock-stitching by shuttles.—In a sewing machine comprising a work-clamp, and needle-thread and under thread cutting-devices, a lock is provided to prevent manual actuation of the clamp-opening means and of the thread-cutters until after the machine has finally come to rest. The upper work-clamp lever 10 is pivoted at 11, Fig. 1, to a block on the longitudinal slide-plate 12. The under-thread cutter 18, Fig. 3, which coacts with the throat-plate on the opposite side of the needle-hole, is fixed to a laterally-sliding plate 15 which is actuated through a lever 28 by a stud 30 on arm 31, Fig. 1, of a bell-crank lever 31, 34 loosely mounted on a rock-shaft 33. A thread pull-off 25, Fig. 3, pivoted to the frame at 21 is actuated by a pin-and-slot connection with the plate 15. The lever 31, 34 is manually operated through a treadle-chain 35. From the end of the arm 34 depends a bar 67 the lower end of which is guided in an aperture in the base-plate 68. A lateral roll 72 of a block 71 slidably mounted on the bar

67 engages the rear end of the clamp-lever 10. The needle-thread cutting and nipping blade is mounted on a vertical shaft 37 on the clamp as described in Specification 4417/08. A crank-arm 38 on the shaft 37 is pivoted to a rod 39 which is supported by an upstanding arm 40 of the clamp-lever 10. A spring connects the arm 40 and a collar 42 on the rod 39 on which is also mounted a stop-collar 41. An arm 44, Fig. 1, fixed to the shaft 33 carries a spring-pressed latch 45 which normally presses against the rod 39. An arm 51 fixed to the shaft 33 carries a spring-pressed pin 53 which contacts with a collar 57 fixed to the usual spring-pressed plunger-rod 58 mounted in the stop-motion lever 61. Pivoted to the base-plate is a latch-lever 74, 76, one arm 74 of which engages under a collar 75 on the bar 67. Another arm 76 of the lever 5 slidably engages the slotted end 78 of a rod 79 to which it is connected by a spring 80. The rod 79 is pivoted at its rear end to the stop-motion lever 61, Fig. 1. The bevelled end of the third arm 81 of the lever 5 engages the bevelled edge 83, Fig. 1, of a lever 84 pivoted to the base and actuated through a rod 88 of adjustable length from a lateral arm fixed to the shaft 33. When



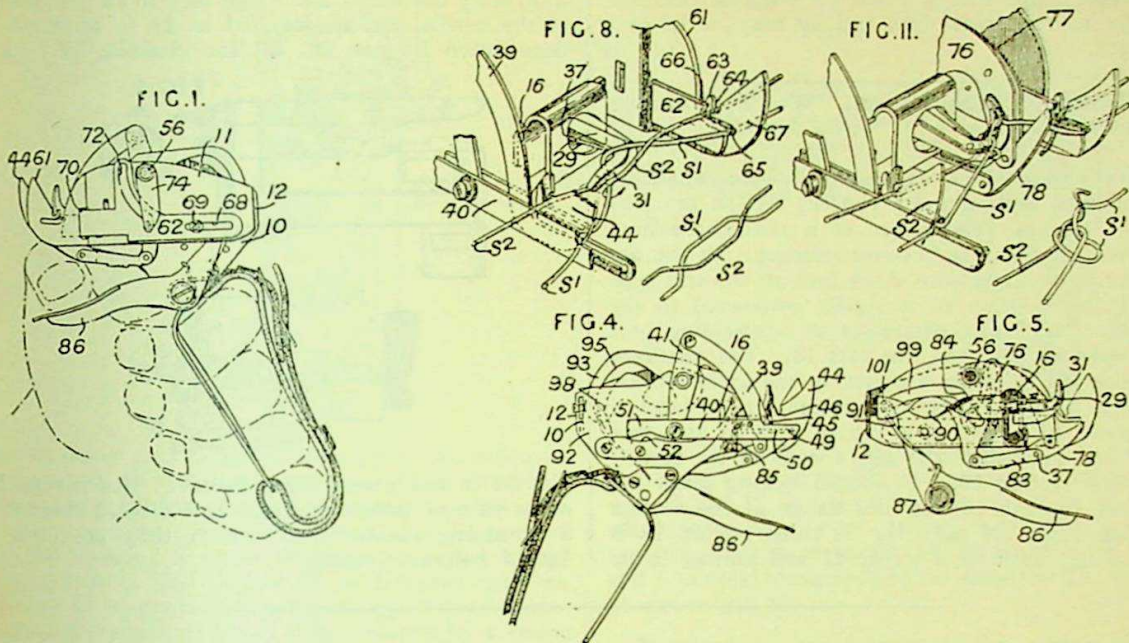
the stop motion lever is moved to dotted-line starting position shown in Fig. 1, the belt-fork 65 shifts the driving belt to the fast-pulley 63 the plunger-rod 58 is removed from engagement with the usual stop-motion cam 62 and the link 79 pulls the latch 74 under the collar 75. If the work-clamp is open, the collar 75 will prevent the starting movement of the lever 61. The rod 39 moves with the work-frame during its forward movement, so that its end passes the latch 45 which thereupon springs behind it. On the return feed-movement, the rod 39 is detained, while the shaft 37 moves rearwardly whereby the needle-thread cutting-blade is retracted, the spring between the arm 40 and the collar 42 being extended in readiness for the cutting stroke. When the lever 61 returns to stopping position, the link 79 moves forward without actuating the latch-lever, while the plunger-rod

58 engages with the cam 62. Continued rotation of the cam depresses the rod 58, which exerts the usual braking action until it springs upward into the stop-notch of the cam. The movement of the lever 61 also brings the collar 57 into engagement with the pin 53 and on the subsequent descent of the rod 58, the pin 53 springs forward over the collar 57 to be lifted thereby when the rod 58 enters the stop-notch. The consequent rocking of the shaft 33 displaces the latch-lever 45 to allow the rod 39 to spring backwards for the cutting operation. At the same time the link 88 is depressed so that, at the end of its movement, the lever 85 swings the latch-lever from under the collar 75, thus allowing the treadle to be depressed to open the clamp and actuate the under-thread cutting and pull-off mechanism. Specifications 18195/02, 17998/03, and 134,924 also are referred to.

203,368. Alexander, A. E., (Mill Devices Co.). May 8, 1922.

Knot-tying devices.—In a machine for tying weavers knots, the threads are crossed at two separated points, one thread is looped around the other thread is looped around the other thread at one crossing, this loop is then twisted through 180° while a loop is formed in the second thread; finally the end of the second thread beyond the second crossing is threaded through both loops. Side-plates 10, 11, Figs 1 and 4, are secured apart by a lateral extension 12 of the plate 11 and by a U-shaped plate 16 secured between them. The bifurcated ends 91, 92, Figs. 4 and 5, of a spring-pressed trigger 86 pivoted to the plate 10 at 87, embrace the spiral stem 90 of the usual rotary tying-bill. A roll 101 on the end 91 of the lever 86 engages in a cam-slot 99 in a cam plate 84 freely mounted on a shaft 56 journaled in the frame. Pivotaly connected to the plate 84 by a link 83 is a cutting and clamping lever 78 which is fulcrumed in and coacts with an auxiliary cutter 76, 77, Fig. 11, pivotaly mounted on the shaft 56. A roll 98 on the other lever-end 91 engages in a cam slot 95 in a cam-

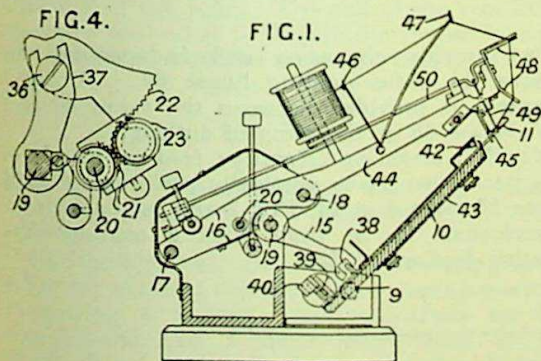
plate 93 fixed to the shaft 56, to which is also fixed an arm 41. A thread-guide arm 39, Fig. 4, and a thread-engaging member 40 are pivoted to opposite ends of the arm 41, and have a pin-and-slot connection 49, 50 at their other ends. The guide-arm 39 has a head 44 provided with guide-slots 45, 46. An extension 51 of the member 40 coacts with a cam-plate 52, fixed to the plate 10. A lug 85 on the side-plate 10 limits the movement of the member 40. The tying-bill comprises cutting and clamping bills 29, Fig. 5, between which is pivoted a coacting jaw 31. The jaw 31 is actuated during rotation of the bill through which the tail of the said jaw passes. Integral with the side-plate 11 but offset therefrom is a thread-guide head 61, Fig. 8, having thread slots 63, 65 and 64. A thread-engaging member 62, provided with fingers 66, 67 which co-operate with the slots 64, 65, is slidably mounted in a slot 70 in the side-plate 11 and has a pin-and-slot connection 68, 69, Fig. 1, therewith. An arm 74 fixed to the shaft 56 engages in a cam-slot 72 of the plate 62. Threads s^1 , s^2 are laid laterally in the guide slots 65, 45 and 64, 46 respectively, the thread s^1 being laid inside the



tying bill, which primarily points vertically upwards, Fig. 8. As the trigger is pulled, the members 39, 40 slide relatively to one another to cross the threads and the member 62 moves forward to position the threads at the other side as shown in Fig. 8. The first 180° of the revolution of the bill forms a loop in the thread s^1 around the other thread. After the next 90° of rotation, the thread s^2 passes between the bill and its jaw 31, while the auxiliary cutter is raised bodily to operating position, Fig. 11, to seize the thread s^1 . During this time, the mem-

ber 62 moves slightly forward to clamp the threads, the members 39, 40 finish their relative motion to clamp the thread s^2 , and are then moved bodily upwards, Fig. 11, by the cam plate 52 to tighten and strip the knot, the threads having been cut and clamped by the bill and the auxiliary cutter so as to leave equal thread-ends. Various modifications may be provided, for instance, the thread-guiding and holding means at either side of the machine may be similar, the threads may be crossed simultaneously, or separate stripping means may be provided.

203,392. Dixon, J., Mitchell, W., and Waterfield, L. June 7, 1922.



Darning.—A machine for mending holes in stockings &c. by knitting new portions therein and for use in knitting narrow articles such as neckties is provided with a small number of latch needles 11 movable in a narrow flat bed and operated by a rocking member 15 having an intermittent adjustable travel across the needles. The needle bed 10 is adjustable on pivots 9 and

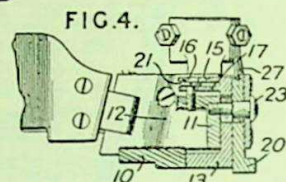
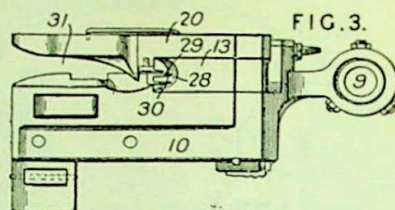
held in operative position by means of a pin and-slot connection and clamping nut. The member 15 is mounted on a carriage 16 sliding on rods 17, 18 and is reciprocated by means of a quadrant 22, Fig. 4, rotated by a hand-wheel. A crank pin 36 on the quadrant works in a slotted arm 37 and oscillates a shaft 19 carrying the member 15 which thus engages the needle-butts 38 one by one, the needles not engaged by the member 15 being held down by a bar 39 with a gap 40. The traversing movement, which is arranged to take place while the member 15 is in the lowest position is effected by the action of the quadrant 22 on gear wheels 21 or 23 which mesh together, the wheel 21 being splined on a screwed shaft 20 by which the carriage 16 is traversed. When the carriage reaches the end of its travel the movement is reversed automatically. Interchangeable and longitudinally adjustable plates 43 control the size of loops made. A latch opener 42 is employed and also a latch closer 45 which is mounted on an arm 44 moving with the carriage. The yarn passes through eyes 46, 47 and through a pivoted eye bar 48 which is shifted at the end of a traverse by means of a finger 49 worked by a cranked rocking shaft 50. Ad-

justable stops are provided for varying the traverse as required. The bed 10 may be in sections.

203,594. Thompson, W. P., (Union Special Machine Co.). Dec. 6, 1922.

Sewing-machines; presser-feet.—An auxiliary adjustable section and a yielding section are provided in the presser-foot of a sewing machine particularly for use in cover-seaming. In the application to a machine of the feed-off-the-arm type the main section 10 is rigidly connected to the presser-bar 9 and comprises an upstanding part 11 with an over-hanging part 12. The auxiliary section 13 fitted in a recess in the main section carries lugs 15, 17 between which fits the head of a screw 21 engaging a tapped hole in the part 12, and accessible through a hole 16 for adjusting the section 13. A second locking screw 23 passes through the vertical flange of the section 13 and into the part 11. A third section 20 is yieldingly held by a spring 27 and limited in its

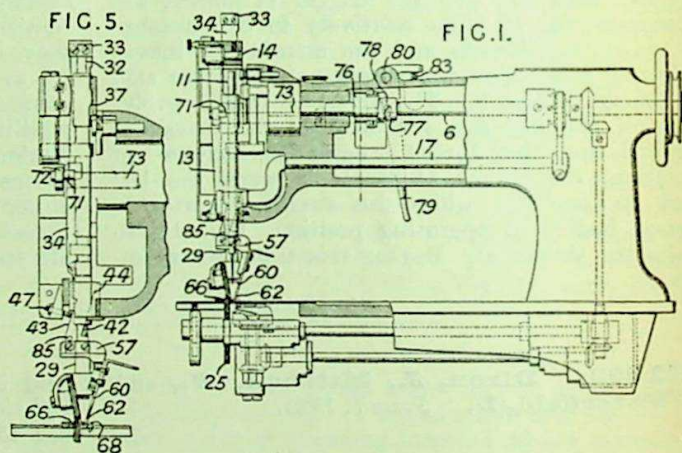
motion by the screw 23. The section 13 is in rear of the needle and is bevelled at 28 to accommodate stitch fingers 29, 30 for chaining-off. A



slot 31 in the presser-foot receives the upturned edges of two fabric sections and directs them to a trimming means after which they are overlapped before stitching.

203,676. Singer Manufacturing Co., (Assignees of Ringe, J. C.). Sept. 8, 1922, [Convention date].

Sewing-machines; trimming and cutting.—Mechanism for trimming the edge of the lowest of a number of plies of material which are being sewn together comprises a trimmer-bar 34, Fig. 5, slidingly pivoted in the machine head at 37 and oscillated during reciprocation by the interaction of surfaces 42, 43 thereon with a cam-incline 44 and an adjustable screw 47 respectively. The bar is reciprocated by a strut 71, Figs. 1 and 5, on an arm 72 of a shaft 73 which is oscillated from a cam 76 on the needle-shaft 6. An arm 33 on the bar 34 rests on a rod 32 spring-pressed upwards within the presser-bar 29. A slotted lug 78, Fig. 1, on a hand-lever 79 pivoted at 80 engages a groove 77 on the shaft 73. Actuation of the lever 79 against a spring 83 moves the shaft 73 endwise to disengage the stud 71 from the trimmer-bar which is immediately forced out of action by the rod 32 to an extent limited by a stud 85 on the trimmer-bar. A bracket 57 is fixed on the bar 34 and carries an adjustable cutter 60 which coacts with a reversible ledger-plate 66 fixed to the throat-plate. The throat-plate is recessed at 68, Fig.



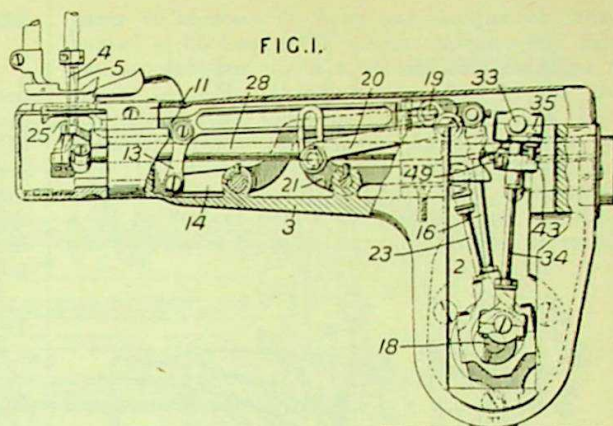
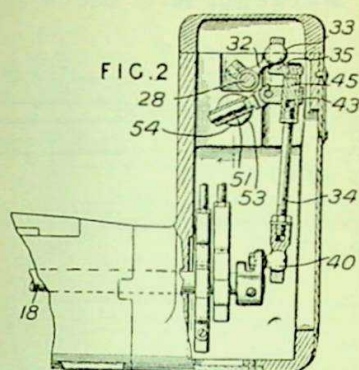
5, to provide clearance and is apertured to receive the cutter-guiding finger 62. A slight clearance is provided between the screw 47 and the surface 43 at the time of cutting.

Needles, vibrating laterally; feed by wheels.—The needle-bar 11 is vertically reciprocated in a frame 13 pivoted at 14, Fig. 1 and oscillated from a rock-shaft 17 in time with a continuously-rotating feed-wheel 25.

204,245. Thompson, W. P., (Union Special Machine Co.). Dec. 8, 1922.

Multiple-needle machines; chain stitching.—In a machine in which a looper-supporting shaft is given endwise needle avoiding movement in addition to loop-taking movements by a single lever connected between its ends to a fulcrum arm the

point of connection of the arm to the lever is made adjustable so as to vary the extent of movement of the looper. The looper shaft 28 carrying two loopers 25 co-operating with needles 4, 5 is mounted in a horizontal work-arm 3 extending from a vertical frame-member 2. A ball 33 carried by an arm 32 projecting from the shaft is engaged by a bracket 35 on a lever 34 connected



at its other end to a ball 40 on a crank mounted on a shaft 18. A sleeve-member 43 on the shaft is pivoted to an arm 51 mounted to slide and turn in a sleeve 53 secured to a stud 54 pivoted in the frame. A screw 45 having a collar engaging a fork in the bracket 35 is threaded into the sleeve 43 to provide a positive adjustment therefor on the shaft whereon it is clamped by a screw 49.

Feed by dogs.—The looper mechanism is associated with a work-feeding mechanism comprising a feed-bar 11 having a sliding pivot 19 at its rear and given a work-feeding movement by an eccentric rod 23, lever 21 and adjustable link 20, and a vertical movement by an eccentric 16, lever 14 and a link 13.

204,251. Thompson, W. P., (Union Special Machine Co.). Dec. 21, 1922.

Chain stitching.—Looper thread controlling mechanism for a machine having a looper oscillating in a single horizontal plane comprises an arm 21' oscillating between fixed thread-guides 14, 16. The guides are supported by a bracket adjustable on the standard of the machine. The arm 21' is carried by a yoke 22 oscillated by an eccentric 35 on the vertical shaft 11 by which the looper 3 is actuated through mechanism including parts 4, 10. A lubricating pad 39 of fibrous material is held in a plate 36 closing the open end of the yoke. The end of the arm 21' is reversely bent so as to engage the thread between and outside the guides as shown in Fig. 8. The

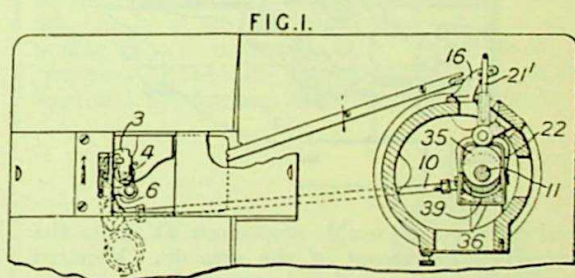


FIG. 8.



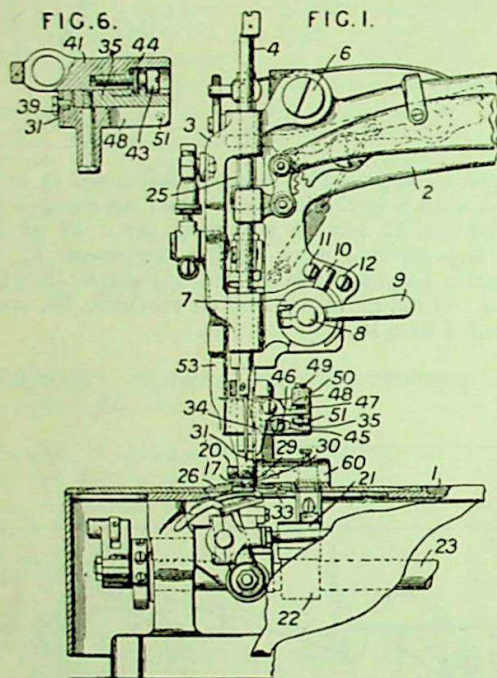
arm 21' is adjustably mounted on the yoke and the eccentric 35 is adjustably mounted on its shaft.

204,595. Thompson, W. P., (Union Special Machine Co.). Dec. 5, 1922.

Sewing-machines; trimming or cutting; work-supports; needles, driving.—In a sewing-machine comprising a movable trimming-blade on the machine-arm and a fixed ledger-blade on the throat-plate, small adjustments of the distance between the stitching-line and the trimmed edge are made by shifting the needle-bar, while for larger adjustments, the reciprocating blade is shifted laterally; a series of interchangeable throat-plates with differently-positioned ledger-blades is provided for use with the varying adjustments of the trimming-blade. A needle-bar 4 is mounted in a gate 3 which is pivoted at 6

to the machine-arm 2 and has an arm 7 in which engages a cam or eccentric on a shaft 8 in the arm 2. The shaft 8 can be rotated by a handle 9 within limits imposed by a pin and stops 11, 12 so as to shift the needle-bar across the line of feed. An interchangeable throat-plate 26 carries a bar formed with a needle-hole 29 and a ledger-blade 30. A spring-pressed member 33 located in a recess in the throat-plate bears lightly against the trimming-blade 31. A laterally-shiftable head 35 has ribbed engagement with a bracket-arm 41 on a yoke 53 which is reciprocated on the presser-bar 25 from an eccentric on the main-shaft 23. A screw 43 threaded into the bracket 41, Fig. 6, has a collar 44 which engages a recess in the head 35. Manipulation of the

screw 43 adjusts the head 35 towards or away from the stitching-line. The head 35 is locked in adjusted position by a screw-and-slot connection 45, 46 with the bracket 41. Pivoted to the head 35 is a two-armed lever 34, 48 on the grooved arm 34 of which is adjustably mounted the forked end 39 of the trimming-blade 31. The blade 31 is yieldingly pressed against the ledger-blade 30 by a spring 41 which is located in a sleeve 49 adjustably mounted in an arm 50 on the

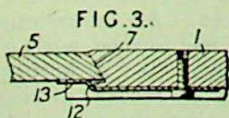


head 35. An adjustable stop-screw 51 limits the downward movement of the arm 48. Mounted on the work-support 1 is a strip-deflector 60. By shifting the head 35, the movable blade 31 may be set at a slight angle to the vertical.

Feed by devices engaging the upper surface of the work.—An auxiliary feed-dog 20 on a bar 21 is moved back-and-forth by a rocker-arm, which also actuates the under feed-dog 17, and is raised and lowered by an eccentric 22 on the main-shaft 23.

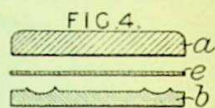
204,596. Thompson, W. P., (Union Special Machine Co.). Dec. 5, 1922.

Sewing - machines; work - supports.—A cover-plate 5 which has loose dovetail engagement with an opening in a sewing-machine cloth-plate 1 is pressed upwards by a leaf-spring 12 fixed to one side-wall 7 of the opening. The spring 12, the end 13 of which has bevelled upper edges, is positioned between the ends of the side-wall 7 so as to allow easy insertion of the plate 5, which will then readily ride over the spring.

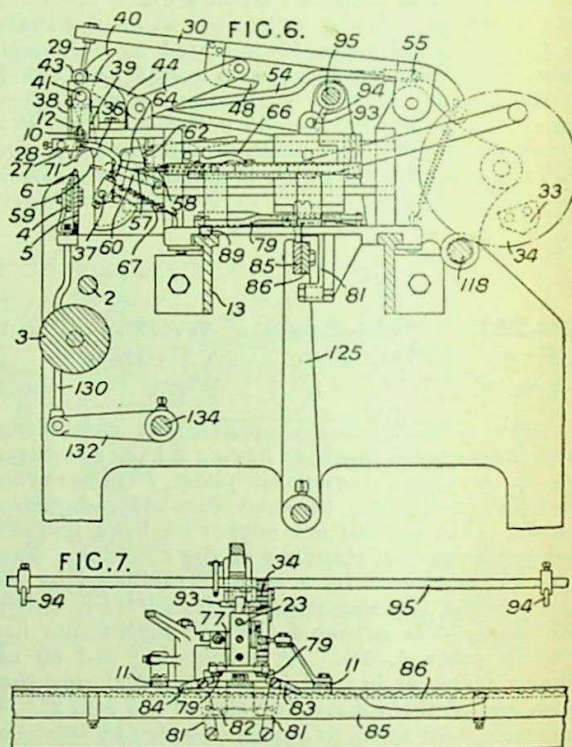


204,615. Parsons, A. Dec. 30, 1922.

Embroidery.—Foundation letters for embroidery work and the like, segmental in cross-section, are cut and formed by compressing sheets *c* of thick paper or the like between a press *a* and a die *b* of the requisite form.

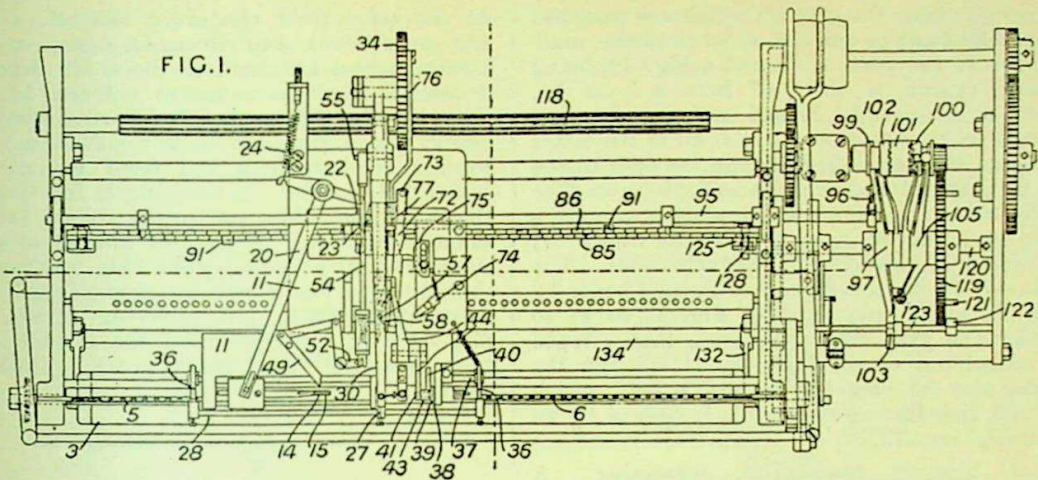


205,242. Felton, W., and Willber, C. July 26, 1922.



Tufting-machines.—A machine is described in which yarn is automatically measured and cut, attached to the foundation and knotted. The backing is led over a bar 2, Fig. 13, round a sand-roller 3, over a vertically-movable bar 4 and a notched bar 5 and between take-up rollers 144.

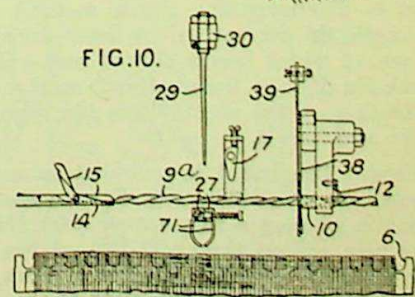
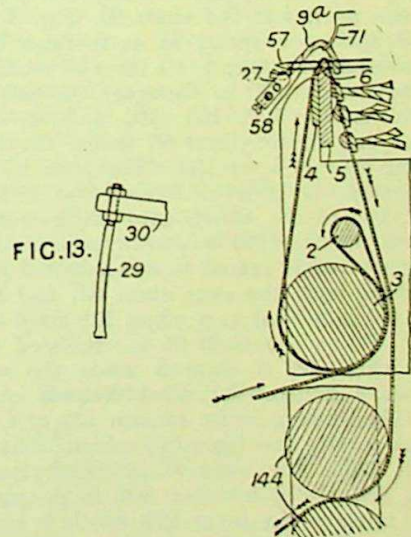
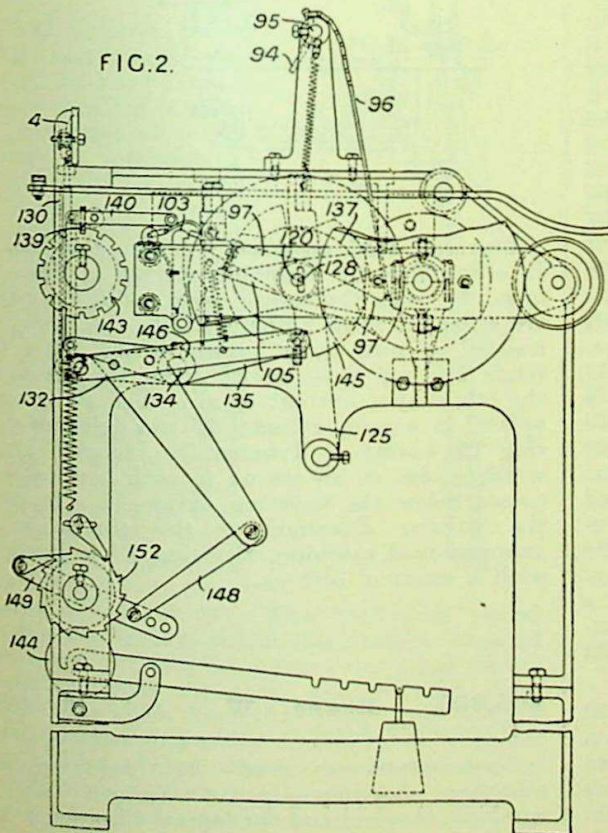
Yarn measuring and cutting. Yarn is led through a tube 10, Fig. 10, mounted in a longitudinally movable carriage 11, Fig. 1, more than one of which may be used, and provided with a non-return device 12. The yarn is measured off by a latch-needle 14, 15, Fig. 1, longitudinally reciprocated through a bell-crank 20 by a screw stud 22 on a transversely-movable slide 23, Fig. 7, which is actuated by a link 76 from a spur-wheel 34 and by a spring 24. On its forward movement, the latch 15 of the needle is opened against a spring by a trip-cam 17, Fig. 10, and then closes on the yarn end, which is pulled out to a predetermined length. The yarn is pushed



down into spring-jaws 27, Fig. 10, by means of a chisel-plunger 29. At the same time, the yarn is cut by spring-opened scissors 38, 39, Figs. 1 and 10, one blade 38 being mounted on an arm 40, Fig. 6, which is pivoted at 41 to the carriage 11 and actuated by a cam-bowl 43 on a bell-crank 44. A lever 30 on which is mounted the plunger 29 is actuated by a cam-nose 33 on the spur-wheel 34, mounted on the carriage 11 and meshing with a long pinion 118, and together with a finger 48 thereon actuates in turn the bell-crank 44. The needle 14, 15 is also opened at the same time by a lever 49, Fig. 1, through a bell-crank 52 and a compressible and adjustable connecting-rod 54 pivoted at 55, Fig. 6, to the lever 30.

Coloured yarns may be fed through a number of tubes 10 mounted on an angularly-movable device which is movable by jacquard or like mechanism so that the needle 14, 15 will grip the yarn required. Alternative means for actuating the needle 14, 15 and the scissors 38, 39 are described.

Yarn, looping and knotting. The stabbing of the severed length of yarn 9a, Fig. 10, forces the loop through a pair of spring-pressed claws 71 and forces down a platform 59, Fig. 6, on an oscillable lever 60. On withdrawal of the plunger 29, the lever 60 rises under the influence of a spring 62 to form an open loop. A needle 57, 58 mounted on the slide 23 then passes through the loop and the backing over one of the notches 6.



At the same time the jaws 27, which are mounted on a rod 28 fixed to arms 36 on an oscillable shaft 37, move to the position shown in Fig. 13, being actuated against a spring 67 from a lever 64, pivoted to the carriage 11 and having a cam face 66 acted on by a stop on the slide 23 as the latter advances. A pin passing through the ends of the jaws 27 prevents the yarn from slipping out. The spindle 37 is also moved longitudinally against a spring by a cam so as to position the needle 57, 58 slightly to one side of the yarn ends. The needle 57, 58 is opened as it advances further by a bar 72 and a trip-cam 74, Fig. 1, so as to embrace the yarn ends, which are then gripped and pulled out of the jaws 27, 71 through the backing and the yarn loop to form a knot, which is pulled tight before the needle is opened by an adjustable cam 75.

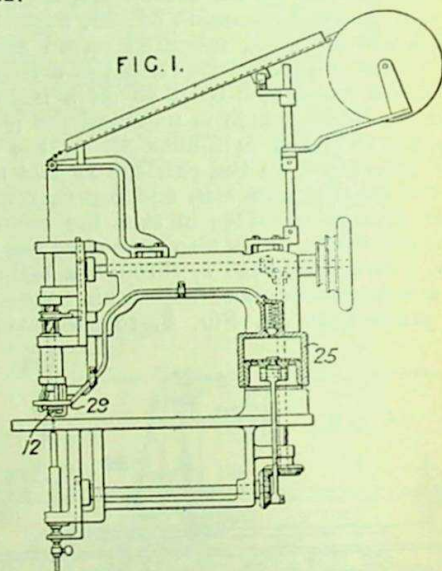
Knot forming mechanism, traversing. A wedge-shaped plate 77, Figs. 1 and 7, fixed to the slide 23 when moving rearwardly actuates levers 79 which in turn force apart levers 81 against a spring 82. Pawls 83, 84, pivoted to the levers 81 bear simultaneously on one of two oppositely-toothed racks 85, 86. The movement of the levers 81 forces the slide 11 to the left, Fig. 7, to the extent of one tooth of the rack 85, which distance is equal to the pitch of the notches 6. To secure accurate registering of the needle and the notches a positioning ball 89, Fig. 6, is intermittently pressed into recesses in the guide rail 13. When the slide 23 advances for the last insertion, a projection 93, Fig. 7, thereon rides past an adjustable finger 94 fixed to a shaft 95. On its return, the carriage 11 is not moved owing to a dummy tooth 91 adjustably positioned on the rack, but the shaft 95, Fig. 1, is oscillated against a spring so as to raise through a connection 96 one end of a lever 97 which thereby engages a cam 99 to disengage the part 102 of a double-clutch 100, 101, 102 and to lower the other end of the lever 97 below the nose of a spring-pressed lever 103. The lever 97 also acts adjustably on a lever 105 so that it forces the part 100 of the clutch into engagement. The clutch member 101 is continuously rotated. The member 102 is geared to an elongated pinion 118 meshing with the spur-wheel 34, and the member 100 is geared to a wheel 119 fixed to a shaft 120. When the shaft 95 is oscillated as above, the wheel 34 is stopped while the wheel 119 makes a half-revolution at the end of which a pin 121 thereon shifts an arm 122 of a shaft 123 so as to trip the lever 103 which is fixed to the shaft 123. The lever 97 is thereby released so that the clutch-member 102 is re-engaged and also releases the lever 105 which is spring-actuated to disengage the clutch member 100. The racks 85, 86 are carried on lever arms 125, Fig. 2, one of which has a slotted connection with a crank-pin 128 on the shaft 120 so that the semi-revolution of the shaft alters the register of the racks and pawls.

Feed. The bar 4 is mounted on spindles 130 pivoted on arms 132, Fig. 2, of a shaft 134, on which is pivoted a two armed lever 135 operated by a cam 137 on the shaft 120. When the shaft 120 is partly revolved, the bar 4 raises the backing so that the loops are clear of the notches 6.

At the same time the lever 135 raises a tooth 139 on a lever 140 from engagement with a notched wheel 143 fixed to the shaft of the roller 3 which is now free to rotate. A cam 145 on the shaft 120 also acts, through a spring-pressed bell-crank 146, a link 148 and a pawl-lever 149 to work a ratchet-wheel 152 fixed to one of the rollers 144, so that the backing is fed forward by the bar 4 and taken up by the rollers 144 at the same time as the reversal of motion of the carriage 11. The rollers 3, 144 are connected together by a chain and sprocket-wheels.

Breaking pieces for relieving strain. Weak pins or wires may be used for making connections between the gear-wheels, pinions and shafts.

205,281. **Kursheedt, A. H.** Aug. 29, 1922.



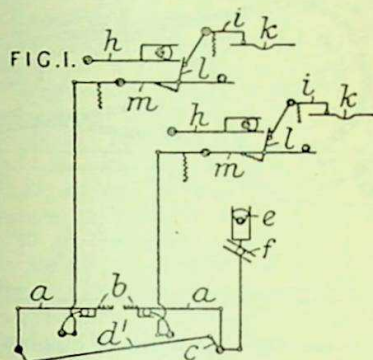
Universal feed machines; cords, attaching.—

In a machine for attaching strings of beads to fabric by using the thread upon which the beads are strung to form a chain stitch, the beads are isolated in turn by a known device above the fabric and are then forced down the thread to the fabric by a current of air. The air is compressed in a pump-cylinder 25 and delivered to a ring 29 having a downwardly inclined orifice which guides an air jet on to each bead after it passes below the isolating device 12. To meet the varying direction of the thread in a universal-feed machine, the ring 29 is provided with a series of orifices.

205,800. **Brase, W.** Oct. 19, 1922, [Convention date].

*Sewing-machines; feed by dogs; needles vibrating laterally.—*In a festoon sewing-machine, the feed and the lateral vibration of the needle are controlled by perforated pattern bands.

Oppositely acting feed-dogs *b* are carried by feed-bars *a* continuously reciprocated from a cam *e* through stitch-regulating mechanism *f* and parts *c*, *d*¹. One or other of the feed-bars is lifted to the operative level when a feeler *i* passes into a perforation in its pattern band *k* and thereby a strut lever *l* is positioned to transmit

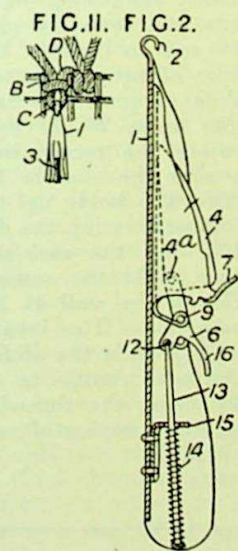


movement from a continuously oscillating lever *h* to a lever *m*. The needle-bar and loop-taker are moved laterally by mechanism operated from a scroll cam and the latter is intermittently rotated by the alternative action of two opposed ratchet pawls controlled in a manner similar to the control of the feed-bars.

206,023. Mackay, D. R. Nov. 17, 1922.

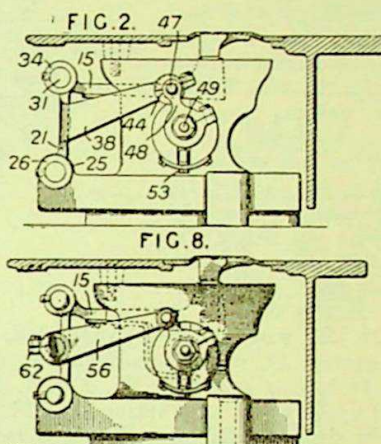
Hand sewing - tools.

—An instrument for use in the hand manufacture of tufted carpets &c. comprises an outer sheath 1 terminating in a hook 2, a guard 3 having sloping shoulders and adapted to be moved by pressure on a finger piece 7 to close the hook and a knife 4 mounted within the guard and adapted to be moved to cut a loop of yarn drawn over the guard. The knife 4 is connected at 4^a to a three-armed lever 6 pivoted at 9 to the guard 3 and at 12 to a rod 13 controlled by a spring 14 abutting against a bracket 15. The hook 2 is passed through the mesh of the doubled canvas, engaged with a running length of yarn, the guard moved forward to close the hook, and the hook withdrawn forming a loop 13. The hook is then again engaged externally of the mesh with the yarn which is drawn through the loop formed on the instrument to form a second loop as shown in Fig. 11. This loop *C* is moved up to the wide part of the guard, to draw up the knot produced,



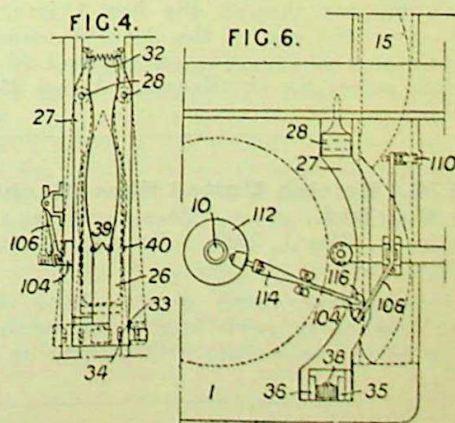
and cut by tilting the knife by pressure on the lever arm 16. Adjacent knots are connected by lengths of yarn *D*.

206,039. Thompson, W. P., (Union Special Machine Co.). Dec. 8, 1922.

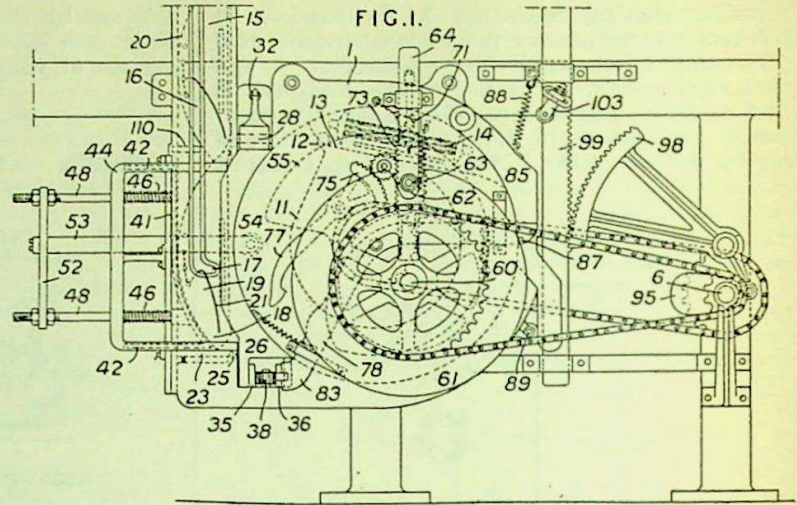


Sewing-machines; feed by dogs. — In a feed-bar mechanism in which the feed-bar 15 rests upon a cam and is reciprocated lengthwise by a rocker 21, the parts are arranged to provide both lateral and longitudinal adjustments of the feed-dog during assembly. The feed-bar 15 is carried by the usual shaft 31 and has some freedom of movement between the lugs on the rocker which support the shaft. Similarly, the rocker 21 has some freedom of movement between lugs 25 on the machine frame. The parts are secured in position by collars 34, 26 on the shafts. Longitudinal adjustment is provided in one case by an eccentric mount 44, Fig. 2, for the pin 47 connecting the arm 38 to the connecting-rod 48 and in another case by making the arm 56, Fig. 8, angularly adjustable in a clamping sleeve 62 on the rocker. Stitch regulation is attained by radial adjustment of the crank-pin 49, which is carried by a block moved in a radial slot by a screw 53.

206,085. Segura, C. March 20, 1923.



Mechanism for automatically extracting and inserting shuttles.—A sewing-machine in which a shuttle is driven along a circular path in a shuttle box having normally-closed exit and entry openings is provided with automatic shuttle discharge and feed mechanism. On a shaft 10, journaled in the shuttle box 1, Fig. 1, and driven by chain gearing from a shaft 6, is mounted a disc 11 having a projection 12 for driving the shuttle 13. A shuttle-feed column 15 integral with the box 1 has a groove 16, 17 to receive the thread ends 21. The floor 23 of the column is pivoted at 25 and is spring-supported. The lowest shuttle 19 of the column occupies a chamber 18 having doors 26, 27, Fig. 4, pivoted at 28 and urged apart by a spring 32. The lower ends of the doors 26, 27 have slotted engagement with pins 33 on racks 35, 36 which engage with a central pinion 38, Fig. 1. Projections 39 on the doors engage notches 40, Fig. 4, to limit the movement thereof. The rear wall 41 of the chamber 18, Fig. 1, is supported on rods 42 housed in a member 44 and is pressed forward by springs 46 which surround rods 48 fixed to the wall 41 and connected by an adjustable member 52. A rod 53 fixed to the member 52 carries a cam-roll 54 which engages with a cam 55 on the shaft 10. A shaft 60 mounted in the box 1 and driven from the shaft 6 carries a cam disc 61 engaging a roll 63 on a slide 64. The slide 64 is spring-pressed downwards and carries spaced therefrom a roll 71 which passes through the box 1 and, when the roll 63 enters a recess 62 in the disc 61, contacts with the spool 14. A rack 73 on the slide 64 actuates a quadrant 75 on a lever 77, the toe of which is adapted to strike a lever 78, pivoted on the shaft 10. The end 83 of the lever 78 is spring-pressed normally into a notch in the rack 36, while a notch on its other end engages a lug 87 on a hinged door 85 to keep the door closed against the action of a spring 88. A toothed quadrant pivoted at 89, Fig. 1, is spring-pressed to actuate a rack-slide adapted to pass through the box 1 into the shuttle-race: the end of the door 85 normally engages a stop on the said quadrant to hold the rack-slide out of the shuttle-race. A cam 95 on



the shaft 6 oscillates a toothed quadrantal lever 98 which in turn reciprocates a vertical slide 99, a roller 103 on which acts to close the door 85 if it is open. A lever 106 articulated to a lug 104 on the door 27, Fig. 4, is articulated at its upper end to a slide 110, Figs. 1 and 6, so that when said doors are opened the slide 110 enters the space between the shuttles 19, 20 to prevent the latter falling while the wall 41 is forward. The doors 26, 27 are closed by a lever 116, 114, Fig. 6, which is actuated by a face-cam 112 on the shaft 10. When the machine is running the periodic descent of the roll 63 into the cam-recess 62 is limited by the engagement of the roll 71 on the spool-thread; when the thread is nearly exhausted the descent of the roll 63 oscillates the lever 77 sufficiently to strike the lever 78 and so liberate the doors 26, 27, 85. The door 85 opens immediately and allows the rack-slide to enter the race to eject the shuttle 13. The doors 26, 27 open and when the roller 54 enters the recess in the cam 55, the wall 41 pushes the shuttle 19 into the race, while the slide 110 holds up the remaining shuttles. On further rotation the door 85 is closed by the roller 103, and the rack-slide is withdrawn from the race. At the same time the doors 26, 27 are closed, the wall 41 having been returned by the cam 55. The lever 78 immediately locks the doors, while the slide 110 is withdrawn allowing the next shuttle to drop into position. Devices for tying the thread at the point corresponding to the insertion of each new shuttle may be provided.

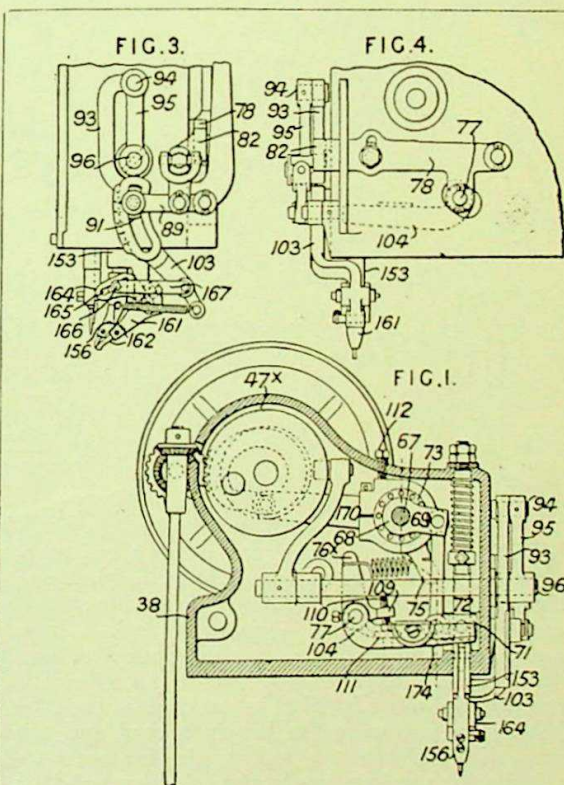
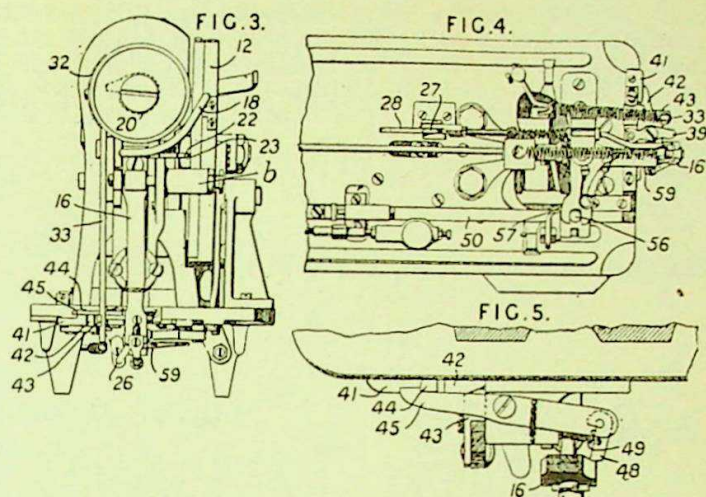
206,176. British United Shoe Machinery Co., Ltd., (*United Shoe Machinery Corporation*). May 1, 1922. *Drawings to Specification.*

Sewing-machines; work guides.—Parts of a boot or shoe to be sewn together are provided with jig holes co-operating with jig pins on the

work carrier of the sewing machine for correctly locating the parts. Specifications 2453/88, 18738/97, and 10595/06, [all in Class 17, Boots &c.], 104,068, [Class 17 (ii), Boots and shoes, Construction of], and 205,839, [Class 17 (i), Boots and shoes, Apparatus for making &c.], are referred to.

206,374. **Fairweather, W.**, (Singer Manufacturing Co.). Nov. 21, 1922.

Sewing-machines; starting and stopping gear.—In stop mechanism for machines for sewing on buttons, barring, tacking &c. a positive stop is associated with a brake which is applied at the inception of the stopping action and released at its completion. The apparatus is described as applied to a machine of known type for attaching buttons and comprising a stop-lever 16 carrying a belt-shifter 18 and a spring plunger (not shown in Fig. 3) which engages a positive stopping-cam 20 on the main shaft, this lever being also mounted so as to have a limited sidewise or shock-absorbing movement after engaging the cam. The lever 16 is held out of operative position by a catch 22 released at the close of a stitching operation by a lug 23 on the cam-wheel 12. At starting the lever 16 is moved out of alignment with the cam 20 and into re-engagement with the catch by the manual operation of a bell-crank lever 27, 28 connected to a spring-pressed rod 26. The brake 32 is mounted on a spring-controlled lever 33. A lever 39 is mounted so that one end may be engaged by the lever 16 in its sidewise motion, the other end engaging a stud on a sliding bar 41, a cam-lug 42 on which engages a cam-lug 43 on the brake lever 33. The bar 41 has a projection 44 engageable by a spring pressed latch-lever 45 carrying a trip 48 held yieldingly at right-angles to the lever 45 by a spring 49. On starting the machine by moving the lever 16, the brake being then inoperative, the slide 41 is latched in its right hand position in Fig. 5 and the trip 48 is in position to be moved by the initial stopping movement of the lever 16 to release the lever 45 from the bar 41 and free the brake from detention by the lug 42. The catch 22 being tripped to release the lever 16 and the brake lever 33, the stopping cam comes into contact with the lever 16 and moves it sidewise against the action of a plunger *b*. This motion of the lever 16 acting through the lever 39 effects the resetting of the slide 41 and puts the brake out of action the catch 45 being allowed to engage the stop 44 owing to release of the trip 48 from the lever 16. The sidewise movement of the lever also effects the final thread-cutting movement of a thread-cutter by its action on a bell-crank lever 57, 59, engaging a stud 56 on an operating-slide 50.



arm 75, which is spring-connected to an arm 76x, Fig. 1, loosely mounted on a shaft 77. The shaft 77 is mounted in a lever 78, Fig. 4, and oscillates in a slot in the casing. The end 82, Fig. 3, of the lever 78 is universally link-connected to an arm 89 pivoted to the casing. A block 91 on the arm 89 travels in a slotted link 93 which is pivoted at 94 to a lever 95. A shaft 96 on which the lever 95 is mounted is oscillated from a rotating cam 47x. A screw 110 adjustable in a lug 109 of the arm 76x bears on a lug 111 of an arm 104 fixed to the shaft 77. The lever 75 is limited in movement by a screw 112, Fig. 1. In a block 153 on the presser-bar is slidingly pivoted a feed-lever 156, Fig. 3, spring-connected to an

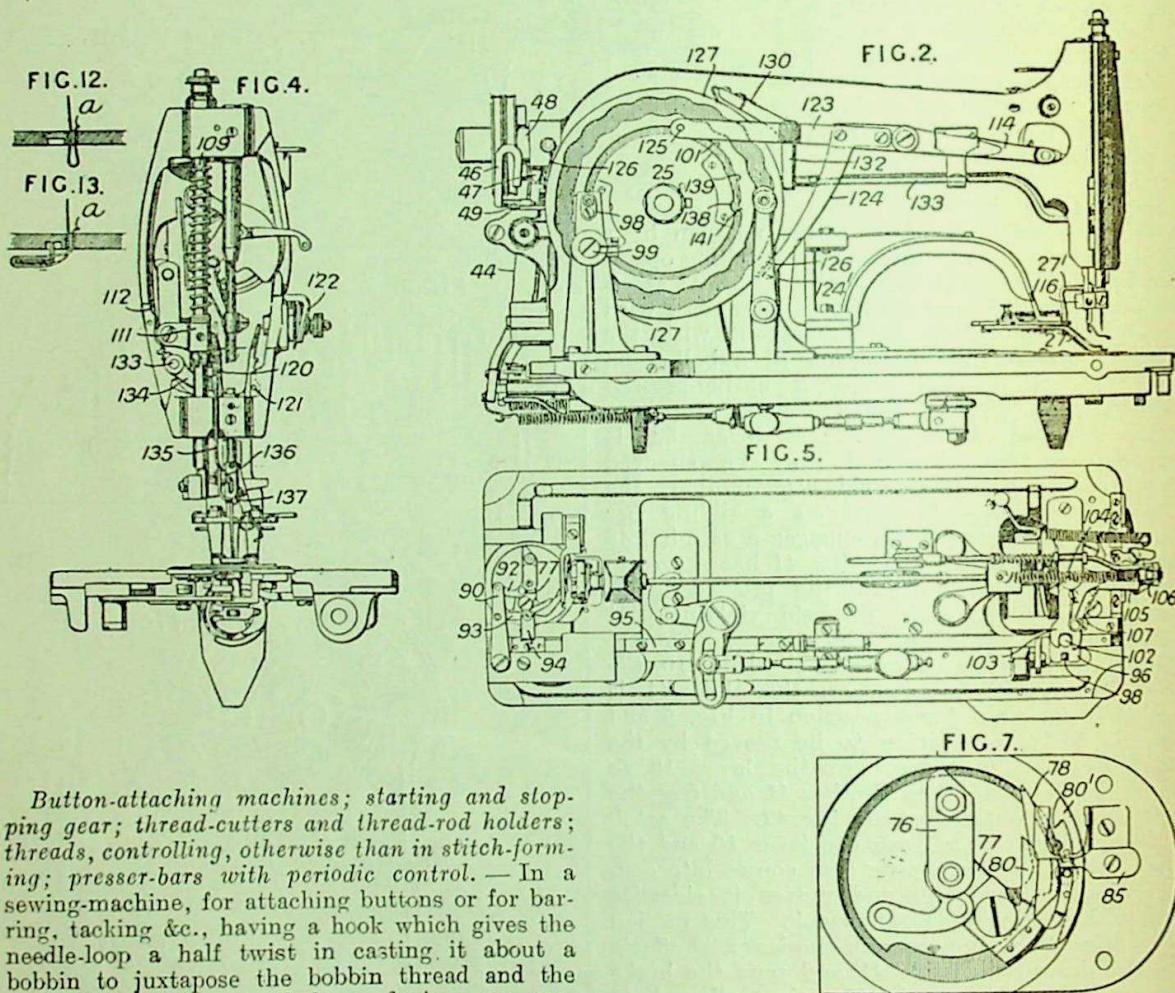
206,463. **Pearson, W.** May 4, 1922.

Sewing-machines; feed by devices engaging the upper surface of the work; presser-bars with periodic control.—The hub 68 of a lever 69 is loosely mounted on a stud 67, Fig. 1, fixed to the sewing-machine casing 38, and is link-connected to a collar 71 on the presser-bar 72. Round a nut 73 which is adjustably mounted on the threaded hub 68 is adjustably clamped an

extension 103 of the lever 53. The block 153 has an extension 161 in which is mounted the presser-foot 162. To the block 153 are secured cam-plates 164, each having a slot 165 through which passes a pin 166 on the feed-lever. A link 167 connects the pin 166 and the member 103. A lever 170, Fig. 1, mounted on the threaded hub 68 is oscillated from the cam-disc

47^x to engage the nut 73 and raise the presser-bar. The descent of the presser-bar does not actuate the nut 73. The end 174 of the arm 104 bears on the block 153 and helps to lock the lever 170 to the nut 73. Adjustment of the member 89 regulates the feed. Specification 201,997 is referred to.

206,710. Fairweather, W., (Singer Manufacturing Co.). Nov. 21, 1922.



Button-attaching machines; starting and stopping gear; thread-cutters and thread-rod holders; threads, controlling, otherwise than in stitch-forming; presser-bars with periodic control. — In a sewing-machine, for attaching buttons or for barring, tacking &c., having a hook which gives the needle-loop a half twist in casting it about a bobbin to juxtapose the bobbin thread and the work limb of the needle-loop, devices are provided which detain the last needle-loop acted on by the take-up and sever the under-thread and the limb of the needle-thread attached to the work close up to the work so as to leave a sufficient length of needle-loop thread for starting the next sequence of stitches. An automatic brake is provided for the stop-motion and as this actuates the cutter too abrupt an action of the latter is prevented. In the button-attaching machine shown, the stop motion of which is as described in Specification 206,374, a jogging work-clamp is actuated through levers by a cam 25, and a stop-motion is provided comprising a stop-lever 44 carrying a belt-shifter 46, and a plunger 47 engaging a positive stopping-cam 48 the lever also having a limited sidewise shock-absorbing move-

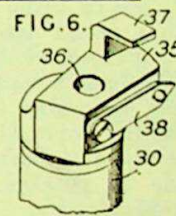
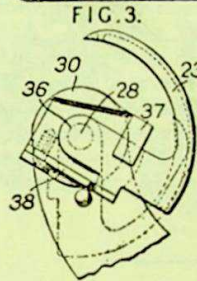
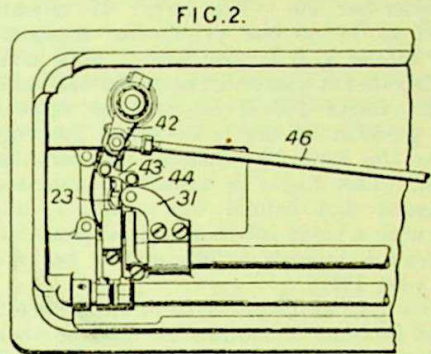
ment. The lever is held out of stopping position by a catch 49 released at the close of a sewing operation by a projection on the cam-wheel. An arm 77 pivoted to a bracket 76 on the underside of the throat plate carries a needle-loop detaining and bobbin-thread pull-off blade 78 on which is a cutting edge coacting with a blade on a plate 85. Also mounted on the arm are a nipper-blade 80 pressing against the part 78 and a barbed plate 80' which nips the needle thread at the beginning of an operation. A lever 90, Fig. 5, is pivoted to the base and connected by a link 92 to an arm 77 and by a link 93 to a lug 94 projecting from a slide bar 95 at the rear end of which is a notched block 96 engaged by

the end of a lever 98, Fig. 2, pivoted at 99 and actuated by a follower engaging a cam-groove 101. The block 96 also carries a stud 102 engaged by a lever 103 pivoted at 104, the other arm 105 of this lever carrying a pin 106 which is pressed outward by a spring 107 and adapted to enter a recess in the lever 44 just before its sidewise movement. A presser-bar 109, Fig. 4, carries a bracket 111, 112 engaged by the end of a lifting arm 114. A bracket 116 on the presser-bar engages an arm 27¹ on the button-clamp 27 which may thus be lifted by the presser-bar. An arm secured to the presser-bar has a cam-surface engaged by a cam on a U-shaped lever 120 pivoted at 121, the other arm of this lever engaging the release-pin of the tension 122. Two arms 123, 124 are secured to the arm 114, the arm 123 having eyes 125 for a treadle connection and the arm 124 having a projection 124¹ adapted to engage one or other of a pair of projections 126 on the cam-wheel. A lever 130, 132, one end of which rests on the periphery of the cam-wheel and engages a recess 127, is connected by a rod 133 to an arm 134 bearing against the rear end of a lever 135 pivoted at 136 to the needle-bar and in contact at its lower end with a spring needle-thread clamp 137 which tends to open when not restrained by the lever 135. On starting the machine the needle-thread clamp is closed on the first reciprocation and the tension is open, while a recess 127 and projection 126 are in contact with their respective followers and the bobbin thread is held by the nipper 80. As the follower on the lever 98 passes from the part 141 to the dwell 139 of its cam the cutting mechanism is moved partly back and the barbed blade 80¹ pulls the needle-thread to one side and nips it. The tension then closes and the thread-clamp opens. On the fourth reciprocation the cam-follower of the lever 98 passes into the dwell 101 completely withdrawing the cutter-mechanism and releasing the needle-thread end. At the end of an operation the needle makes several tying-stitches in the same hole and on its last rise as the loop is cast off and drawn up by the take-up the thread-cutter advances and the detainer 78 pulls off the bobbin-thread and enters the loop. The rotary hook has caused the positions of the limbs of the loop to be reversed as shown in Fig. 13 so that the limb a attached to the work together with the bobbin-thread are in a position to be cut by the blade. The final sidewise motion of the stopping-lever 44 is communicated by the lever 103 to the slide-bar 95 and gives an additional thread-severing movement to the cutter, this being permitted by an enlargement 138 in the cam track.

206,726. Thompson, W. P., (Union Special Machine Co.). Dec. 8, 1922.

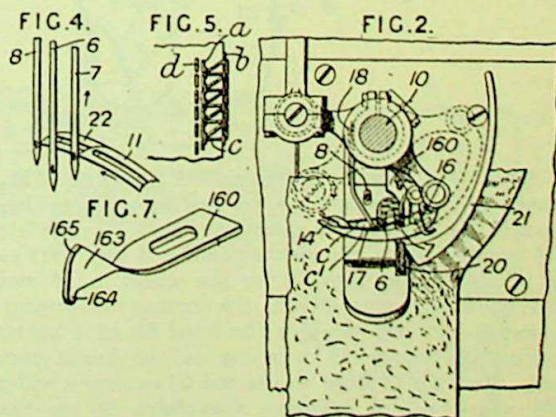
Chain-stitching.—In a chain-stitch sewing-machine the driving-shaft is mounted in the overhanging arm and is connected to drive the mechanism below the work plate by eccentric rods connected to the feed mechanism, and a vertical shaft connected to the looper. The

threaded looper 23 has a pin 28 which is received in a socket 36 in a looper-carrier 30 having a head-portion 35 with an overhanging bracket 37. The looper is locked in place under the bracket by a pivoted latch 38 so that it may be released and turned outwards or removed for threading. The looper-carrier, which is mounted on a shaft oscillating in a bracket 31 beneath the work-



plate, is actuated from the vertical shaft through mechanism comprising a crank, a link 46, a lever 42 and toggle links 43, 44 for producing a dwell at the forward end of the stroke of the looper. The vertical shaft is driven from the main shaft through bevel-gearing. A controller for the looper thread is operated by an eccentric on the vertical shaft.

206,727. Thompson, W. P., (Union Special Machine Co.). Dec. 8, 1922.



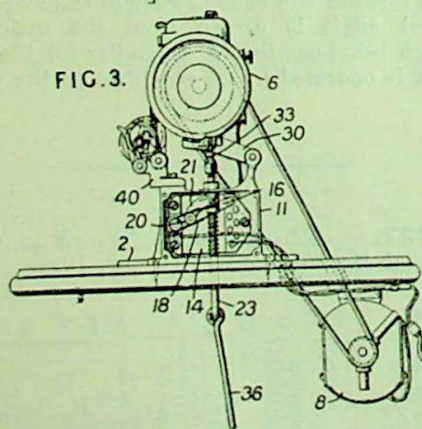
Sewing-machines; surface threads, attaching.—In a multiple-needle sewing-machine for pro-

ducing an over-edge seam, suitable for uniting fabric sections to form a pocket &c. and having fabric-trimming means, one member of the loop of a cross-thread, concatenated with the needle-threads by a reciprocating hook, is positioned to pass between the needles by a finger 17. The cross-thread *c*, Fig. 2, passes to the work through a guide-edge and over a cam-faced arm 16 and lies in the path of a hook 14 pivoted centrally on the presser-bar 10. The finger 17 adjustably mounted at 18 on the presser-bar engages the limb *c* of the loop formed by the hook and deflects it so that it passes between the needles 6, 7. A second finger 160 is provided to ensure the correct position of the cross-thread for engagement by the hook 14 whatever the variation of the feed. This finger is adjustably mounted on the presser foot behind the needle 7, and is formed with a blade 163 in a vertical plane having a downward projection 164 and a backwardly curved part 165.

Trimming or cutting.—A trimming device 20 is arranged in front of the needles and the hook 14, the strip cut off being deflected by a deflector 21.

Multiple needle machines; seams.—A third needle 8 is mounted to one side of an behind the needles 6, 7 and a separate threaded looper 22 co-operating therewith is mounted on the same rocker as the looper 11 of the needles 6, 7 so that a single line *d* of double-loop stitches is produced alongside the stitches formed by the needle and cross-threads *a*, *b* *c*.

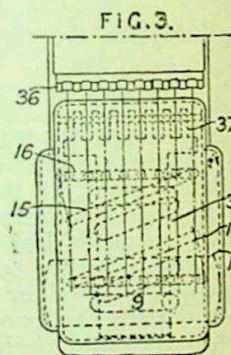
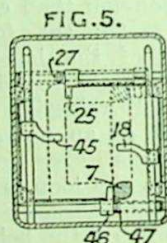
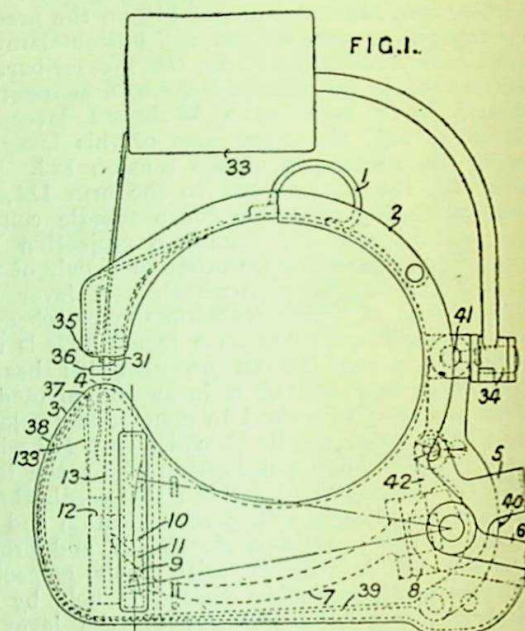
206,816. Singer Manufacturing Co.,
(Assignees of Diehl, F.). Nov. 11, 1922,
[Convention date].



Sewing-machines; driving.—A casing 11, mounted on the bed 2 of a sewing-machine beneath the fly-wheel 6 contains a motor-controller 14 connected to the driving-motor 8 and carries a pivoted brake arm 30 for the wheel 6. A rod 23 slidably mounted in the casing is spring-pressed upwards against the head 33 of a screw adjustably mounted in a lug on the brake arm 30. An arm 21 fixed to the rod 23 carries a roller 20 which works between side-plates 18 on the controller-arm 16. By actuating a treadle-rod 36 to pull down the rod 23, the brake is released and the motor is started.

Spools, bobbins, and the like, winding.—A bobbin-winding device 40 is mounted on the casing 11.

206,886. Morley, D. W., and Woodroffe, C. H. July 6, 1922.



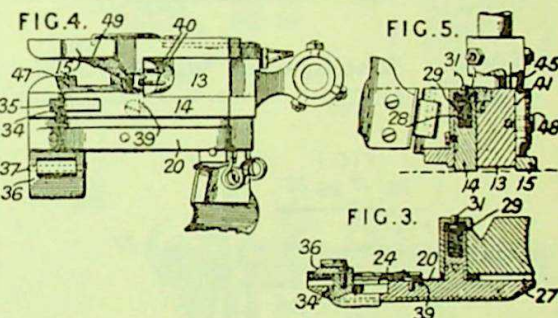
Darning.—A hand appliance for darning by knitting comprises a housing 2, 3, Fig. 1, to which is pivoted an arm held in position by a spring 1. Arms 5, 6 pivoted to and fixed to the housing respectively are pressed together by hand so that an arm 7, pivoted at 8 on the arm 5, and an arm 40, pivoted at 41 to the housing and pivotally connected to lugs 42 on the arm 5, are actuated. The arm 7 engages a slot 9 in a member 10, Fig. 3, freely mounted in a vertical raceway. Pins 11 on separate needle blocks 12 engage another slot in the member 10. When the needles 13 are fully withdrawn, the arm 7 is at the right-hand end of the slot 9. When the arm 7 rises, the member 10 is tilted to the position 14 and then raised bodily to the position 15. During this movement the arm 7 displaces string-connected vertical and horizontal sliders 18, 25 against a spring 27, Fig. 5, until the sliders contact to free

the slider 18 from the arm, when the spring 27 returns the sliders and swings the arm 7 from right to left, Fig. 5, so that the member 10 is raised to the position 16, the needles being raised consecutively to the highest position. On the downward movement of the arm 7, due to a spring between the arms 5, 6 the needles descend in a similar manner, the arm 7 and the needles being returned to their original position by sliders 45, 46 and a spring 47, Fig. 5. The needles rise through needle-slots 4, Fig. 1, and between prongs on a spring yarn-guide 36. When the needles are fully raised, yarn 31 is laid in the guide by swinging a bobbin-arm 33 on its pivot 34 from one side of the apparatus to the other. During the descent of the needles, the blocks 12

are pressed forward into a recess 133, Fig. 1, so that the needle-beards are closed for passage through the work by a presser 35, and the yarn guide 36 is pressed aside to allow the loops to be drawn therefrom. After the needles have left the work, prongs 37 on a blade-spring 38, which is fixed to a rod 39 pivoted to the lever 40, pass through the needle-holes 4 to feed the work. For removing and replacing the work, the latch 1 is removed and the pivoted arm raised. The Provisional Specification describes a modification in which the needles are mounted in a single block and penetrate the work simultaneously, and refers to means for varying the needle-spacing and the number of needles in action.

207,386. **Thompson, W. P.**, (*Union Special Machine Co.*). Dec. 6, 1922.

Sewing-machines; presser-feet are formed with a fixed main section and two yielding sections one on each side of the main section, such being particularly adapted for machines making a flat covered seam and using three needles with a looper thread on one side of the seam and a covering thread on the other side. The main section 13 extends mainly in rear of the needles and the side sections 14, 15 extend to a point in front of the needles. An outer projection 20 on the section 13 also extends alongside and in front of the needles and is slotted at 24 to receive the stationary member of a trimming mechanism co-operating with a movable member carried by an arm. The section 14 is received in a recess 27 and has an upwardly extending shank 28 in which is a spring 29 adjustable by a screw 31. An auxiliary section 35 is mounted on a spring-pressed arm 36 and projects through an opening 34 in the section 14 which also carries an arm 39 with upper thread guides 40 which assist in the formation of the covering stitches and in chaining off. The section 15 is carried by a shank 41

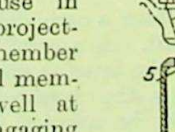


secured against the section 13 by a screw 48 and pressed by a spring 45. The inner faces 47, 49 of the sections 14, 15 are curved and bevelled to receive the upturned edges of the fabric sections, direct them to the trimming mechanism and after they are trimmed turn them down into overlapping relation. The part 45 overlies the part 49 to some extent as shown in the underneath plan, Fig. 4.

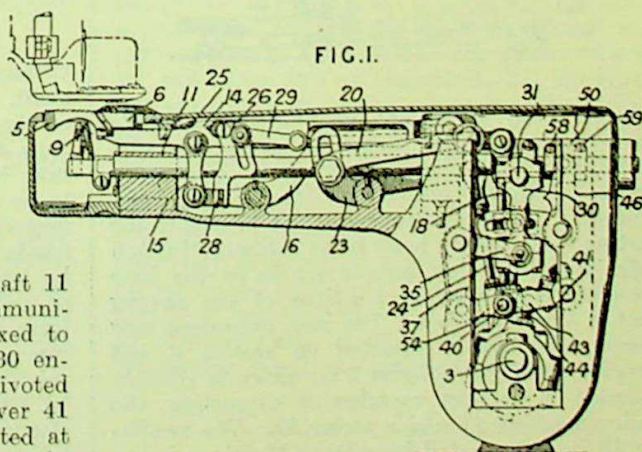
207,397. **Thompson, W. P.**, (*Union Special Machine Co.*). Dec. 21, 1922.

Chain-stitching.—In a looper mechanism specially adapted for use in machines having a work-arm projecting from a vertical frame member which projects from a horizontal member the looper is given a dwell at the forward end of its loop-engaging stroke and while it is being moved laterally to avoid the needle by mechanism located in the vertical member.

The threaded looper 9 is mounted on a shaft 11 to which loop-engaging oscillations are communicated by mechanism comprising an arm fixed to the shaft carrying a ball-stud 31, a link 30 engaging the ball-stud, a rock-lever 35, 37 pivoted to the link 30 and to a link 40, and a lever 41 pivoted to the link 40 and pivotally-connected at 43 to an eccentric-rod 44 driven from the main shaft 3. The endwise needle-avoiding movements of the shaft 11 are effected through a rock-



The diagram illustrates the mechanical components of a chain-stitching looper. It shows a vertical frame member with a horizontal member extending from it. A looper (9) is mounted on a shaft (11) and is shown in a position where it is about to engage a loop. The mechanism includes a ball-stud (31) on a shaft, a link (30) connecting it to a rock-lever (35, 37), which is further connected to a link (40) and a lever (41). The lever (41) is pivotally connected to an eccentric-rod (44) driven from a main shaft (3). The diagram also shows a needle (1) and a thread (2) being manipulated by the looper.

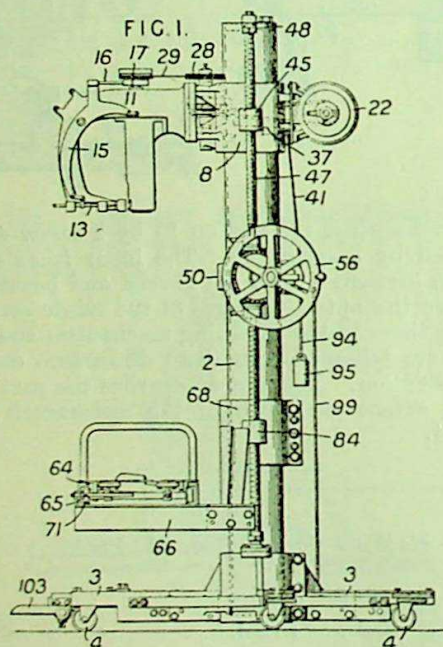


lever 46 one arm of which is pivoted to a collar 50 loose on the shaft between fixed collars 58, 59,

the other arm being slotted to receive an adjustable pivot connection with an eccentric rod 54 driven from the main shaft. The mechanism is so arranged that the toggle formed by the link 40 and lever 41 is straightened at the time when the looper is in its most advanced position thus producing a dwell.

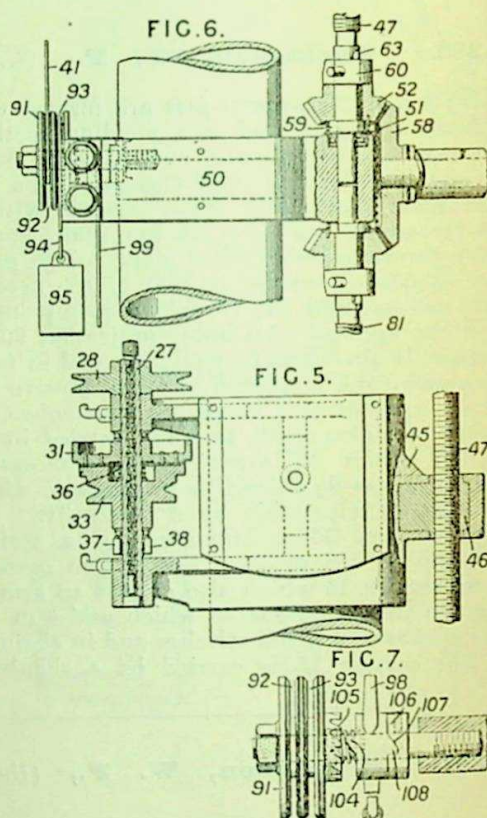
Feed by dogs. — In the machine shown the looper mechanism is associated with a differential feed mechanism comprising a feed bar 14 carrying a main feed dog 5. Feeding movements of the bar is effected by an eccentric rod 24, a lever 23, and adjustable link 20 and vertical movement by an eccentric rod 18, lever 16 and link 15. Slidably mounted in the bar 14 is an auxiliary feed-bar 25 carrying the dog 6 and moved differentially with respect to the bar 14 by a link 29 pivoted to the bar 14 and a lever 26 fulcrumed on a stud 28 pivoted to the link 29 and to the auxiliary feed-bar.

208,004. Thompson, W. P., (Union Special Machine Co.). Dec. 2, 1922.



Sack-sewing machines; starting and stopping gear.—In a filled-sack sewing-machine the sewing-head and the sack-support are adapted to be vertically adjusted either simultaneously or independently. A compensating device to enable the starting-lever on the head to be actuated through a flexible connection from a handle on the base irrespective of varying positions of the sewing head is also described. The base comprises four spaced members 3 mounted on castors 4 and carrying a tubular column 2 on which is slidably mounted a bracket member 8 supporting the sewing-machine 11 and a motor 22. The needle-bar 13 is reciprocated by a lever 15 driven by an eccentric 16 from a shaft 17 coupled by a belt 29 to a pulley 28 on a transmitting device driven by

a belt from the motor. This device comprises a shaft 27 on which are fixed the pulley 28 and a clutch and brake disc 31 and on which is mounted a pulley 33 over which passes the belt from the motor. The pulley 33 is raised against the action of a spring 36 to engage the clutch 31 by a fork 38 carried by a lever 37 to which is attached a flexible connection 41. The bracket 8 carries a projection 45 in which is held a nut 46 entered by a screw 47 turning in a bearing 48 at the top of the column and in a bearing-block 51 carried by a bracket 50 secured to the column. A bevel-wheel 58 rotatable by a hand-wheel 56 is mounted on the bracket and a bevel-wheel 52 splined on the screw-shaft 47 is adapted to be engaged therewith, against the pressure of a spring 59, by the rotation of a collar 60 having



therein a cam-slot which engages a pin 63 in the shaft. A second screw-shaft 81 enters a nut 84 on the bracket 68 carrying the tracks 65 on which runs the carriage for the sacks and this shaft may be coupled similarly to the wheel 58 so as to be actuated by the hand-wheel either simultaneously with or separately from the shaft 47. The tracks 65 which are of channel-section are carried by irons 66 and support a carriage 64 mounted on rollers 71. The cord 41 by which the starting lever is actuated is compensated for variations in the position of the sewing head by means comprising a rotatable member 91 having two slots 92, 93. The cord 41 is wound and secured in the slot 92 and another cord 94 carrying a weight 95 is wound and secured in the slot 93. A lever 96 is pivoted on the shaft of the member 91 and has on one face teeth 104 adapted to engage teeth 105

on the member 91 and on the other a tooth 108 spring-pressed into engagement with a recess 107 in a fixed collar 106. The lever 98 may be depressed by pressure on a treadle 103 connected to an operating cord 99, the tooth 108 then riding out of the recess 107 and pressing the teeth 104 into engagement with the teeth 105.

208,096. Keyser, G., and Hepworth, J. W. Feb. 9, 1923.

FIG. 3.

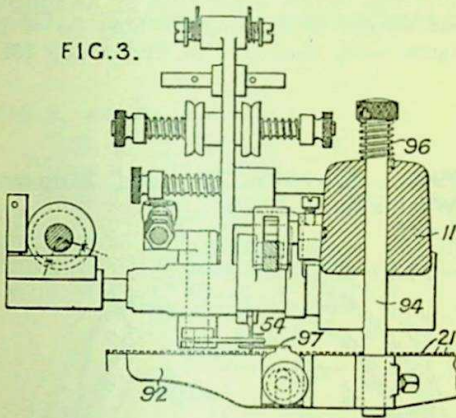
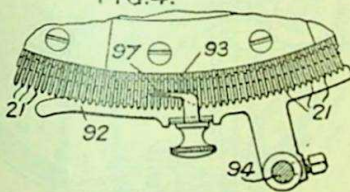


FIG. 4.



Knitted-fabric sewing-machines.—A presser-arm 92 fixed to a vertical stem 94 journaled in the machine-arm 11 is pressed upwardly and inwardly beneath the impaling-pins 21, by a spring 96 on the stem 94. A projection 93 is formed on the arm 92 directly beneath the needle 54, the edge of the projection being in line with a stitch-receiving finger 97 mounted for vertical adjustment on the arm 92.

208,281. Fairweather, W., (*Singer Manufacturing Co.*). Oct. 6, 1922.

Sewing-machines; starting and stopping gear.—Power-transmitters of the treadle-controlled clutch-and-brake type used in sewing-machine power tables are movably mounted and pressed by resilient means to tension the driving-belt continuously, manual means being provided for relieving this tension. The table top 1 is supported on transverse guard rails 2 carried by brackets 3, each secured to a leg 4 and provided with forwardly and upwardly extending arms 6, 7. The transmitter frame 11 has a depending

arm 10 carried on a pivot 9 in the arm 6, is provided with a lug 42 and an arm 27, and has secured in it the spindle 13 on which are freely mounted driving and driven pulleys 16, 15, associated respectively with a driving clutch disc 14 and a driven leather ring 18. A compression spring 45 bears on the lug 42 and arm 7 to tension the driving-belt 17 and, to some extent, the driven belt 19. A stem 43, traversing a slot 8 in the arm 7, has a wing-nut 44 and cotter-pin 44' serving to limit the expansion of the spring and providing means for compressing it when removing the belt 17. An arm 20, provided with a long boss 24 bearing on a spindle 25 secured by set-screws in the arm 27, is actuated by a vertical treadle rod 34 and carries a cam piece 21

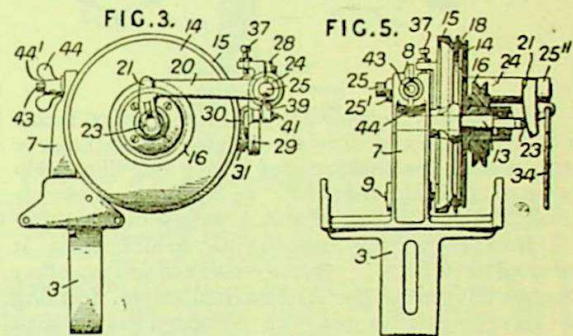
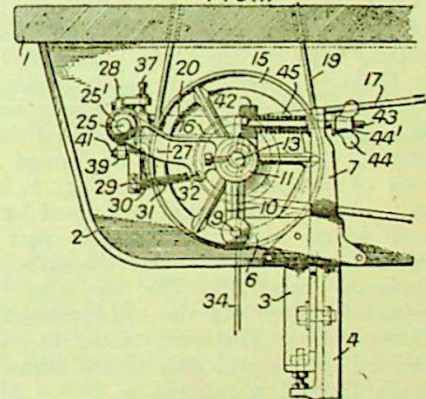
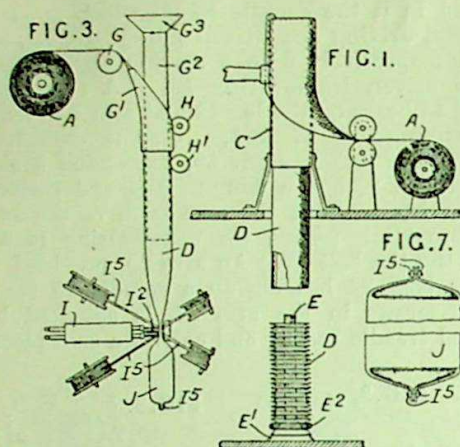


FIG. 1.



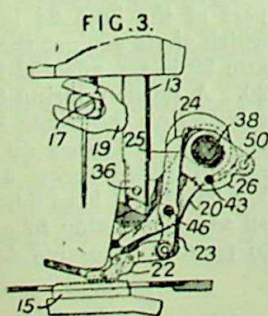
contacting with a thimble 23 to put the clutch 14, 18 into engagement. A brake arm 29 having a pad 30 is clamped by its split hub 28 on a reduced part of the boss 24. By means of a nut 25' and collar 25'' on the spindle 25, the clutch-actuating arm 20 can be adjusted. The reduced part of the boss 24 is longer than the hub 28, which abuts against the arm 27, so that the brake arm 29 is not affected by adjustments of the arm 20. A tension spring 31 connects the arm 29 to a lug 32 on the frame 11, the brake further being positively actuated on release of the treadle by an adjustable screw 41 carried in a depending lug 39 of the boss 24. The arm 29 carries also an adjustable stop 37 contacting with the arm 27 to prevent excessive depression of the treadle.

208,868. **Bates, A. M.** Nov. 13, 1922.

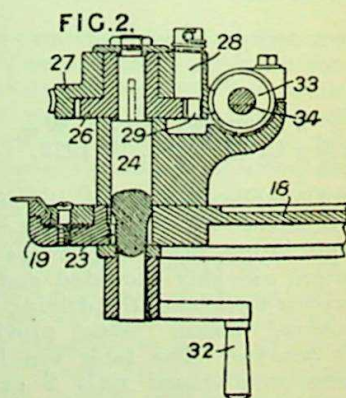
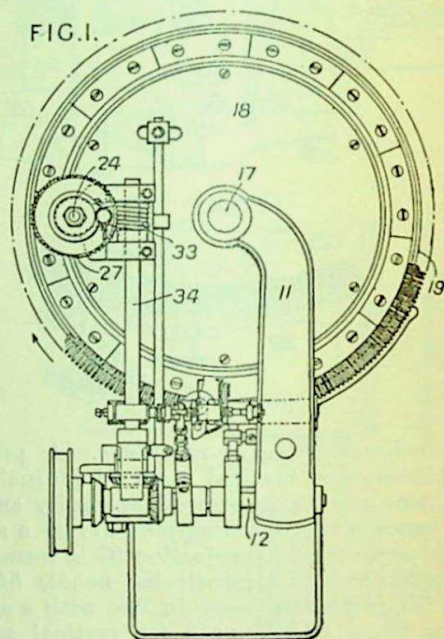
Sack-sewing machines; turning articles inside out; stitches and seams.—Relates to methods of and means for making and filling bag-like packages, of paper, fabric, &c. In the form shown in Fig. 3, material from a roll A passes over a roller G into a forming member G' which folds it around a tube G''. Sewing mechanism or other means H unites the longitudinal edges, forming a tube D, which may be collapsed longitudinally upon the tube G'' in order to form a reserve to draw upon. The end of the tube having been closed by a previous operation and a charge having been inserted from a funnel G'', a sewing machine I is operated to sew a double seam, reinforcements I⁵ of twine being incorporated therein. A cutter I² severs the material between the seams. The tube D may be formed on the outside of a forming tube C, Fig. 1, reversed by being drawn down inside, collapsed longitudinally, and drawn over the enlarged part E¹ of the central tube E against the resistance of an elastic retaining band E². The bag may be made of crinkled paper and the reinforcement of twine, heavy paper, cardboard, cloth, &c., and may be applied to one side only of the seam. Specifications 182,972 is referred to.

208,968. **Golby, F. W.**, (Lewis Felling Machine Co.). April 5, 1923.

Sewing - machines; feed by devices engaging the upper surface of work.—An upper-feed device for co-operating with an under-feed dog is mounted on the usual presser bar and actuated by the engagement of a stud on the needle bar with an actuating lever acting through a cam and levers to give the work-engaging and feed movements. The fitting is attached to the



presser-bar 13 by a screw 36 and comprises a frame 20 carrying at its lower end a foot with a recess for the feed-dog 22 and at its upper part supporting a stud 38 on which is mounted the actuating lever 19 engaging a stud 17 on the needle-bar. A cam 26, adjustably secured to the lever 19 by a screw 43 entering a slot, engages a lever 24 pivoted at 46 and carrying the dog 22 to which it transmits feed-movement. A roller 50 on the cam also engages a cam-shaped extension of a lever 25 also pivoted at 46 and bearing on the top of the dog to which it gives work-engaging movement. The dog is partly supported and its return movements are effected by a spring 23. The cam 26 is so shaped and placed with reference to the levers that by its adjustment the feed stroke of the dog 22 may be varied in accordance with that of the under dog 15.

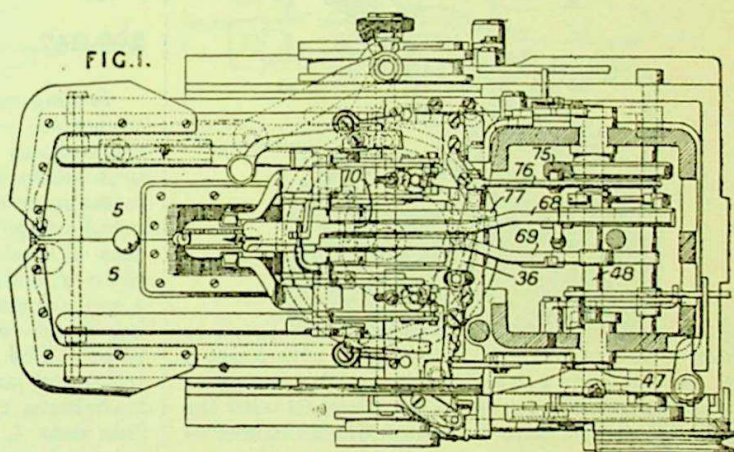
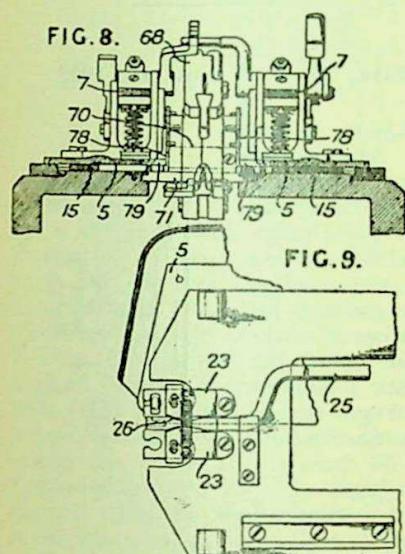
208,998. **Keyser, G., and Hepworth, J. W.** Feb. 9, 1923.

Knitted-fabric sewing-machines comprising a rotary pin-wheel, worm-and-wheel driving means

therefor and a needle operated in time with the impaling-pins, are provided with means for connecting and disconnecting said driving-means without altering the relationship between the needle-operating means and said driving-means. The pin-ring 19 is revolubly supported by a disc 18 fixed to a shaft 17 which extends downwardly from the machine-arm 11. A driven-shaft 12 drives a shaft 34 which carries a worm 33 meshing with a wheel 27 on a shaft 24, journaled in a bracket on the disc 18. A pinion 23 on the shaft 24 engages with internal teeth on the ring

19. The wheel 27 is revolubly supported by a toothed-wheel 26 keyed to the shaft 24. A spindle 28 journaled in the wheel 27 carries a pawl 29 spring-pressed to connect the wheels 26, 27, which may be disengaged by turning the spindle 28. The ring 19 is always actuated by the same part of the worm 33 while the needle is in the work and this relationship is preserved irrespective of the independent rotation of the ring by a handle 32; this preserves accurate registry of the needle with the impaling-pins.

209,087. Singer Manufacturing Co., (Assignees of Allen, E. B.). Dec. 29, 1922, [Convention date].



Button-hole sewing-machines.—A machine of the kind in which the button-hole slot is cut before stitching is provided with means to ensure the alignment of the cutter and the work-clamp consisting in the provision of a restricted slot in the work-clamp carrier-plate which is engaged by the fulcrum-block of the cutter when moved forward to cutting position. The machine is generally of the kind described in Specification 197,463 and comprises separable clamp-plates 5 which support clamp-levers 7 and are moved apart by the action of wedge surfaces 26 on a link 25 engaging levers 23 pivoted to their forward ends,

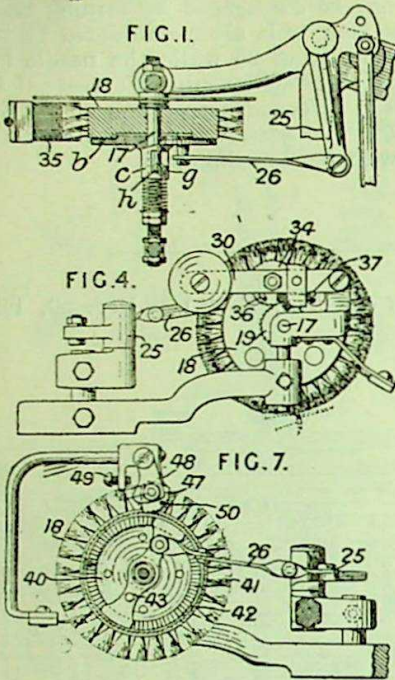
and by a toggle 36 at their rear ends pivotally connected to the link 25 and actuated by a cam 47 on the cutter shaft 48. The cutter-levers 68, 69 are fulcrumed at 70 on a travelling block 71 which is advanced and retracted by the action of a cam 75 operating a link 76 connected to a rearward extension 77 of the block. The cross-slide plate 15 on which the plates 5 rest has mounted thereon, on each side of the central slot for the cutter lever fulcrum, wear-plates 79 which co-operate with wear-lugs 78 on the block 71 and definitely fix it laterally when in the forward position.

209,108. Victorious, M. L. Dec. 30, 1922, [Convention date].

Knitted-fabric sewing-machines.—A circular brush for a linking-machine is oscillated and at the same time intermittently fed forward so that the wear is evenly distributed and the brush is cleaned by a stationary comb. A brush 18 is mounted on a spindle 17 adjacent a friction disc *b*, adjustably spring-pressed against it. The disc is oscillated by a universally-jointed

link 26 from a bell-crank 25, actuated from the machine drive. A sleeve *c* on the disc *b* contains a cam-surface *g* which coacts with a pin *h* on the stationary spindle 17 so that the brush is actuated for an equal portion of the oscillation of the disc *b* in each direction. In one direction, however, the brush is freed at the end of its motion so that owing to the presence of a comb 35, the resilience of the bristles will give a slight reverse movement to the brush which is impossible during the opposite movement. The brush is thus fed slightly forward during each oscillation. The bell-crank

25 also actuates the shears. In a modification, the bell-crank 25 is universally connected to one half of a spring-pressed ratchet-clutch, the other half of which is mounted on one side of the brush

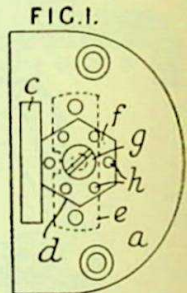


18, Fig. 4. On the other side of the brush is fixed a ratchet wheel 19 which gears with a wheel 34 mounted on a weighted lever 30. Owing to the coaction of a pin 36 on the wheel 34 with the lever 30 and an adjustable stop 37, the wheel 34

can only move during part of the movement of the bell-crank 25 in each direction. This results in relative movement of the clutch parts during clockwise motion and slip between the wheels 19, 34 during the reverse motion, so that the brush is given the requisite motion. In a further modification, the driving ratchet-clutch part 43, Fig. 7, coacts with teeth 41 on a disc 40 fixed to the brush while peripheral teeth 42 on the disc engage a pivoted ratchet pawl 47, the motion of which in a clockwise direction is limited by a pin 50 and an adjustable stop 49 and in the reverse direction by a spring 48 for the same purpose as above. The clutch-member 43 has two crank pins of different throw, while the crank pin in any of the constructions may be adjustable to vary the throw.

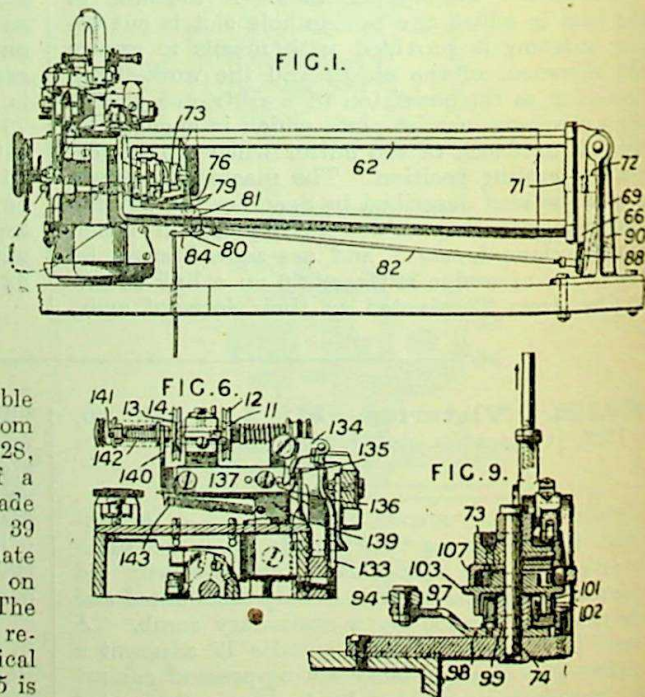
209,247. Ellis, E. J. Nov. 16, 1922.

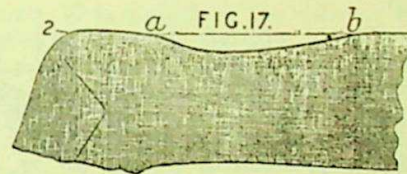
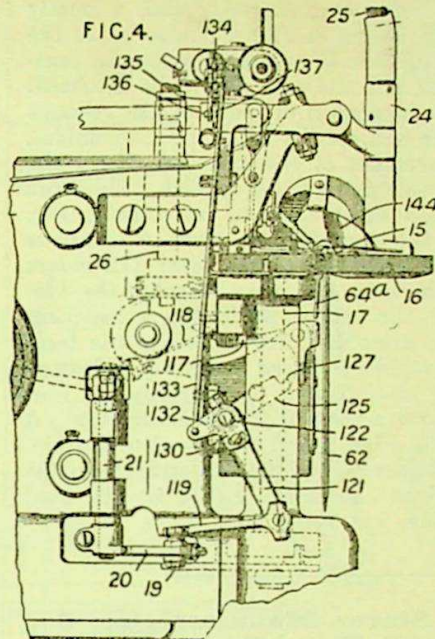
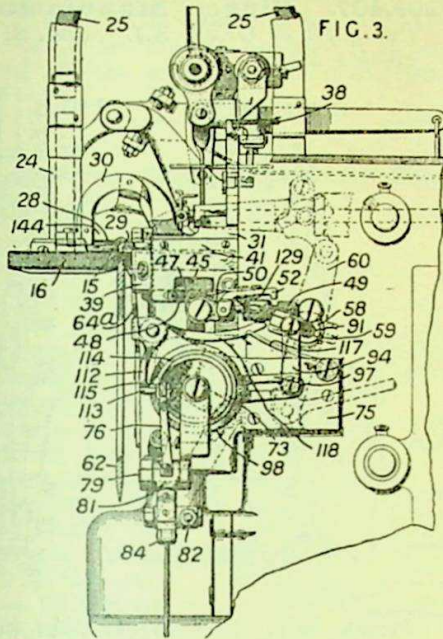
Sewing-machines; work-supports. — Alternative needle-holes are provided in a plate *f* of triangular rectangular or regular polygonal shape which is let into a hole in the needle-plate *a* and is secured by a screw *g* and a bar *e* crossing the hole on the under side. The plate *f* can be taken out and repositioned to bring a new needle-hole into use.



209,310. Thompson, W. P., (Union Special Machine Co.). Feb. 1, 1923.

Overhead sewing-machines; trimming or cutting. — In a machine for shaping and seaming a tubular knit stocking, Fig. 17, the trimming mechanism is automatically thrown into and out of operation at predetermined times while the sewing operation continues. One feed-wheel 15 is carried by a vertical shaft 17, Fig. 4, which is intermittently rotated by a clutch member vibrated by a link 19 which is adjustably connected to a slotted arm 20 of a shaft 21 oscillated from the main shaft. The other feed-wheel 16 is carried by a shaft mounted in an arm 24 and intermittently rotated by a flexible shaft connection 25 from a shaft 26 driven from the shaft 17. A stationary trimming blade 28, Fig. 3, fixed in an overhanging arm 30 of a bracket 31 co-operates with a reciprocatory blade 29 which is adjustably carried by a slide 39 mounted in the bracket 31 and covered by a plate 41. The bracket 31 is vertically adjustable on the frame by means of an adjusting screw 38. The slide 39 has a depending lug 45 recessed to receive a spring 47 which bears against a vertical wall 48 of the plate 41. Pivoted to the lug 45 is





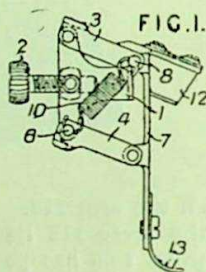
a telescopic link, the parts 49, 50 being connected by a spring-pressed latch 52. The part 49 is pivoted to a continuously-oscillating arm 58 fixed to a shaft 59 carrying a lever 60, which is oscillated from an eccentric on the main shaft. The stocking is slipped on to a guide-frame 62, Fig. 1, pivoted for horizontal movement to a bracket arm 66, which is pivoted for vertical movement to a fixed standard 69. The frame is held in normal position by a lug 71 thereon engaging a spring-slip 72 on the bracket 66. A stationary bracket-arm 64^a, Fig. 4, engages the frame to align it with the feed wheels. A pattern-cam 73 is fixed to a rod supported by a bracket 75, Fig. 3, a cam-lever 76, 80 pivoted at 79 is spring-pressed against the face-cam 73. An arm 81 loosely pivoted at 79 can be locked to the lever-arm 80 by a treadle-operated latch 84. A link 82 pivoted at one end to the arm 81 is adjustably pivoted at its other end to an arm 88 carried by the bracket-arm 66. When the cam 73 forces the arm 76 outwards the frame 62 will be swung upwards. When the latch 84 is disengaged the frame 62 will swing downwards until the bracket-arm 66 strikes an adjustable stop 90 on the standard 69, to allow the frame to be swung laterally for placing the work in position. A link 94, Fig. 3, adjustably pivoted to a slotted arm 91 of the link 58 is adjustably pivoted at the other end in a slotted arm 97 of a disc 98 mounted on the rod 74, Fig. 9. The hub 99, of the disc 98 co-operates with friction gripping members 101, which engage a collar 102 on a disc 103 freely mounted on the rod 74. The disc 103 has ratchet-and-pawl connection with a cup 107 fixed to the cam 73. Oscillation of the arm 58 will impart intermittent rotation to the cam 73 when the ratchet and the pawl are in engagement. A gripping plate co-operates with the collar 102 to prevent retrograde movement of the cam. The arm 112 of a two-armed lever 112, 118 engages with a peripheral cam 114 on the cup 107 and is kept in contact therewith by a spring 117 pressing

on the arm 118. A portion 115 of the cam gives the lever 112 its greatest outward motion, and when this has passed, the nose 113 of the lever enters a hole in the cam so as to hit the tail of the pawl therein, thus disconnecting the pawl-and-ratchet connection and stopping the cams 73, 114. The length of feed depends on the pivot of the link 19 and the arm 20, Fig. 4, and this pivot is adjusted by means of a link 119 which is ball-jointed to the pivot and to an arm 121 fixed to a shaft 122. A spring surrounding the shaft 122 tends to rock the shaft so that the link 19 moves to an adjustable stop screw in the outer end of the arm 20. An arm 125 fixed to the shaft 122 is engaged by an arm 127 integral with the arm 112 so as to hold the shaft 122 against actuation by its spring during trimming. The arm 118, Fig. 3, of the cam lever 112 engages a depending arm 129 of the trimmer latch 52. A plate 130, Fig. 4, loosely mounted on the shaft 122 is adjustably secured to the arm 121 and an arm 132 thereon is connected through a rod 133 to a rock-arm 134, Fig. 6. A depending lug 135 of the arm 134 engages a pin 136 on a plate 137 laterally slidable on the bracket 139. A forked arm 140 of the bracket straddles a rod 141 carrying a tension spring 142 which normally presses the tension discs 11 and 13 into contact with the needle and looper-threads. When the bar 137 moves to the left the tension is relieved. When the bar 137 is released, tension is applied by a spring 143. In operation, a false seam is sewn on the stocking from the point 2 to the point a, Fig. 17. At this point, the arm 121 is pushed inward, thus shorten-

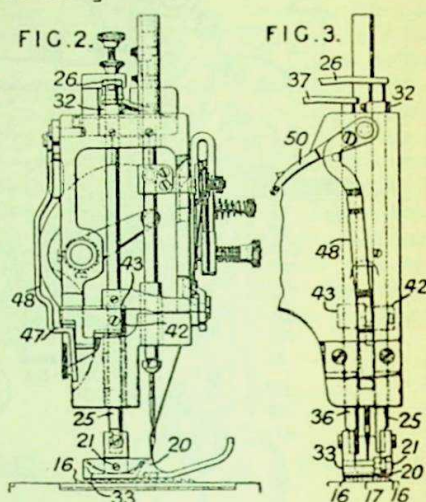
ing the feed, whereupon the lever 125, normally in the position shewn in Fig. 4 pushes aside the arm 127, so that the lever 112 releases the cam-actuating pawl, and the cam 73 will be actuated. The resultant depression of the arm 118 releases the latch 52 to actuate the trimming mechanism, while the movement of the arm 121 allows the auxiliary thread tension to be applied. The work is now trimmed and seamed to the point *b*, Fig. 17. When the cam 73 has made a complete revolution the nose 113 of the lever 112 enters the hole in the cam 114, thus stopping the vertical feed of the work, while the consequent motion of the arms 118, 127, shortens the feed, releases the auxiliary thread tensions, and stops the trimming mechanism. A false seam is now sewn up the remainder of the stocking leg. A strip guard 144, Figs. 3 and 4, is fixed to the arm 30 so as to deflect the trimmings away from the stitching devices. A thread cutter is also fixed on the machine.

209,328. Singer Manufacturing Co., Ltd., Corral, H., and Heggie, J. March 5, 1923.

Presser-feet; presser-bars with periodic control.—An attachment to the presser-bar of a sewing-machine in place of the ordinary presser-foot comprises a socket 1 clamped to the bar by a screw 2 and carrying two yoke-shaped links 3, 4 pivoted to a shank 7 supporting a bent wire darning-foot 13. The foot is pressed downwards by springs 10 attached to the pivots 6, 8 of the links and is raised on each needle stroke by the engagement of a hook-shaped projection 12 by the needle-clamp or other member on the needle bar.



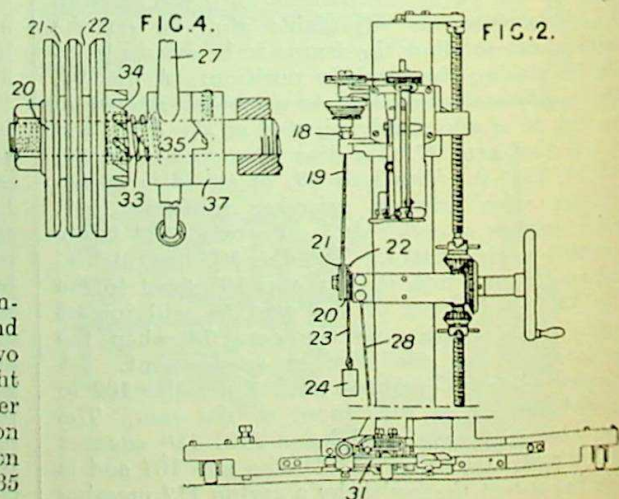
209,407. Singer Manufacturing Co., (Assignees of Grieb, A.). Jan. 8, 1923, [Convention date].



Presser-bars; presser-feet.—A pivoted main presser-foot is employed in conjunction with an auxiliary presser-foot which is independently supported and is located in rear of the needle to feed the stitch-chain when no work is in position, as between successive sacks in a sack-sewing machine. A main foot 20 is pivotally mounted at 21 on a block secured to a presser-bar 25 the downward movement of which is limited by a collar 32 to prevent unnecessary pressure on the feed-dog 16 when no work is in place. The auxiliary foot 33 which lies to the rear of and partly to one side of the foot 20 is supported by a bar 36 and co-operates with a section 17 of the feed-dog to feed the stitch-chain. The bars 25, 36 are under the tension of adjustable blade-springs 26, 37. The lifting device for the presser-bars comprises a link 48 moved by a finger-piece 50 and having thereon a shoulder 47 which engages collars 42, 43 on the presser-bars. Specification 114,251 is referred to.

209,696. Thompson, W. P., (Union Special Machine Co.). Dec. 2, 1922.

Starting and stopping gear; sack-sewing machines.—In a filled-sack sewing-machine having a sewing head adjustable vertically a device is provided to enable the starting lever on the head to be actuated from a treadle on the base, such device automatically compensating for varying positions of the sewing-head. The machine is driven by a motor mounted on the head through a drive including a clutch operated by a lever 18 to which is connected a flexible member 19 which is wound and secured in a slot 21 of a wheel 20 having two slots 21, 22. Another cord 23 carrying a weight 24 is wound and secured in the slot 22. A lever 27 pivoted on the shaft of the wheel 20 has on one face teeth 33 adapted to engage teeth 34 on the wheel and on the other face a cam-tooth 35

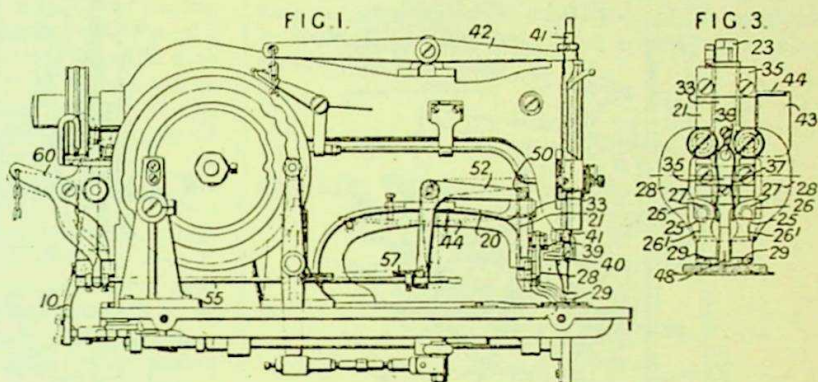


normally spring-pressed into engagement with a recess in a collar 37. The lever may be depressed by pressure on a treadle 31 connected to an operating cord 28, the tooth 35 then riding out

of the recess and engaging the teeth 33 with the teeth 34. The weight 24 compensates for slack or allows extension of the connection between the wheel 20 and the sewing-head.

210,060. Singer Manufacturing Co., (Assignees of Allen, E. B.). Jan. 20, 1923, [Convention date].

Button-hole sewing-machines. — A machine for barring and tacking is provided with a work-clamp comprising jaws which are caused to be approached, so as to contract the end of a button-hole &c. slit, by means operated by the starting device in moving the stop-motion lever to starting position. The clamping-feet 29 are carried by shanks 28 pivoted to a slide 33 held by a plate 35 on a block 21 carried by an overhanging arm 20. The slide 33 and feet are adapted to be depressed into engagement with the work by a leaf-spring 44 engaging a lateral extension 43 of the slide and may be lifted out of engagement by the manual raising, through an arm 42, of a bar 41 having a projection 40 which engages a stud 39 on the slide. A bar 23 sliding in a slot in the block 21 is provided at its lower end with wings on which are parallel surfaces 26, 26' and inclined surfaces 25 which engage rollers 27 on the shanks 28. When the slide is raised the inclined surfaces cause the approach of the clamping-feet, the parallel surfaces 26' being forced tightly against the rollers. In starting the machine the usual



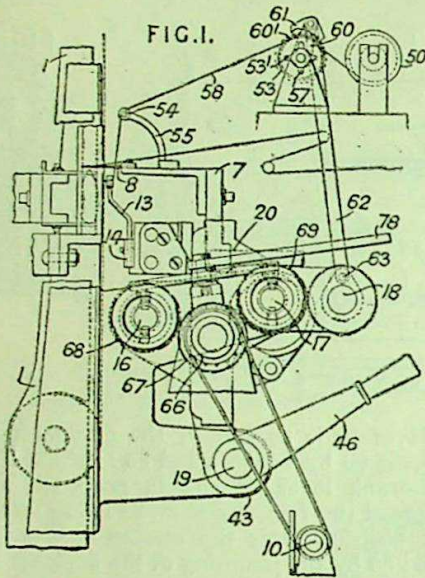
stop lever 10 is shifted by the manual actuation of a lever 60 by which a rod 55 is shifted to turn a bell-crank lever 52 and to raise the slide 23 and spread the feet, the slide 23 being retained in raised position after the release of the lever 60 and rod 55 by the jamming of the surfaces 26' and rollers 27. When the slide 33 and feet 29 are lifted at the close of a sewing operation the rollers are raised clear of the inclines 25 and the feet are moved apart by a spring 37, the slide 23 and bell-crank lever 52 being returned by a spring 57. A thin blade 48 is mounted on an extension of the slide 33 to assist the operator in correctly placing the button-hole slit.

210,196. White, A. E., (Elesco Lace & Embroidery Co., Inc.). Nov. 8, 1922.

Embroidery machines. — In an embroidery machine for attaching cord, braid &c. to fabric the attached cords &c. are led to the point of attachment by guides which are moved synchronously with the strokes of the needles alternately to the opposite sides of the line of the pattern, the line of reciprocation being variable in such a way that it lies in all its parts ahead of the needle along the line of the pattern. Material to be embroidered is stretched on a frame 1 controlled by pantograph or other known mechanism and cords &c. 58 are stitched thereto by needles 8 carried by a bar 7 operated in known manner. The cords 58 pass from drums 50 over a tension roller 53 and a guide bar 54, carried by brackets 55 on the needle bar, to guides 13 carried by a bar 14 which may be selectively oscillated either up or down or from side to side by means connected with shafts 17, 16 respectively. A frame 20 is supported on the shafts 16, 17 and a shaft 19 and carries slidably on rods 22 a secondary frame 23, lugs on which support rods

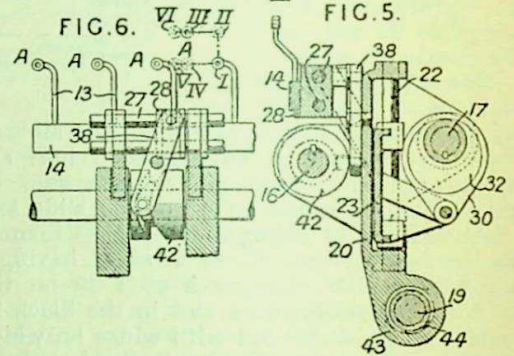
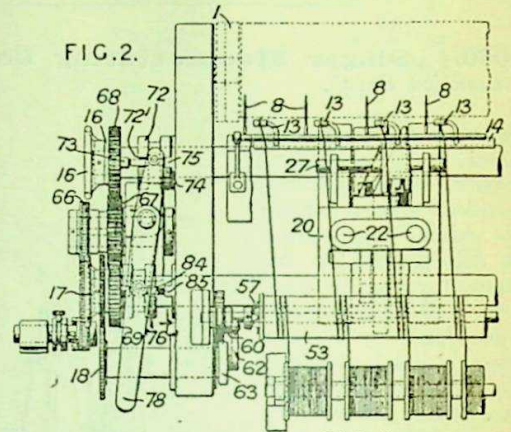
27 carrying blocks 28 which support the guide-carrying bar 14. The frame 23 is reciprocated vertically by a strap 30 and eccentric 32 splined on the shaft 17 and the block 28 is reciprocated horizontally by a lever 38 engaging at one end a cam slot in a cam 42 splined on the shaft 16 and at the other a vertical slot in the block 28. The frame 20 may be moved laterally by hand actuation of a lever 46 on the shaft 19 a threaded sleeve 44 on which engages the lower part 43 of the frame. The shafts 16, 17 are driven from the main shaft 10 through gearing comprising a belt 66, gear 67 and loose gears 68, 69, with which the shafts 16, 17 may be selectively engaged by clutch sleeves 72, 76 splined to the shafts and operated by a hand lever 78. The clutch 72 has on one face notches 72' for engaging opposite lugs 73 on the gear 68 and on the opposite face a single notch 74 for engaging a single lug 75 on the frame. The clutch 76 has on one face two opposite notches engaging lugs on the gear 69 and on the other face two opposite notches 84 engaging two lugs 85 on the frame. The two fixed positions of the shaft 17 provided by the two lugs 85 engaging the co-operating

notches correspond with the points I and II, Fig. 6, below and above the needle A respectively, and when this shaft is locked the guides can be reciprocated along the line I, IV or the line II, III, but when the shaft 16 is locked, as only one locking position therefor is provided, the guides can then be reciprocated vertically only, along the line I, II. To obtain vertical reciprocation along a line on the other side of the needle the frame



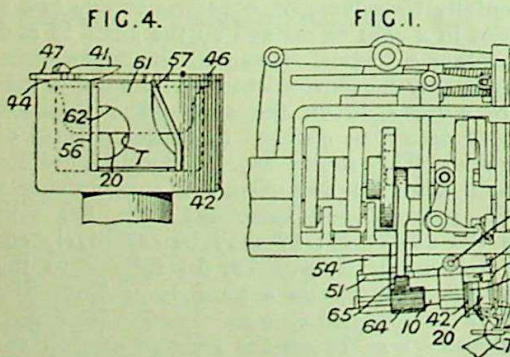
20 is displaced bodily by the lever 46 the reciprocation then taking place between points V and VI. The tension roller 53 for the attached cord is freely mounted on a shaft 53¹ and provided with a spring tension spider 57. To adjust the variations in tension produced when the guides reciprocate between the points I and II or V and VI, a ratchet wheel 60¹ on the shaft is adapted

to be engaged by a double pawl 61 mounted on an arm 60 pivoted on the shaft 53 and actuated by a link 62 connected to an eccentric 63 mounted on a shaft 18 geared to the shaft 17. The opera-



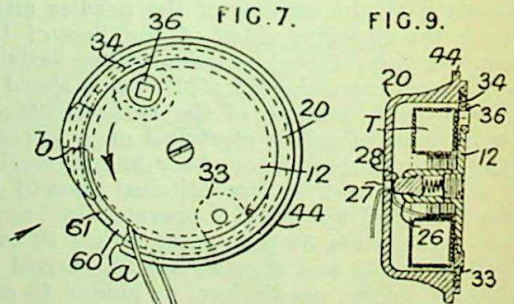
tion of the levers 78 and 46 to regulate the line of reciprocation of the guides is in accordance with the direction of the line of the pattern as determined by the movement of the work frame 1.

210,360. Reed, J. H., and Little Co., A. E. Jan. 9, 1923.



Boot-sole sewing-machines; lock-stitching by shuttle.—In a shoe-sewing machine of the Kay type, the shuttle comprises a rotatable bobbin-member arranged in a plane slightly inclined to the needle axis, so that the beak of the said member engages the needle-thread loop at its

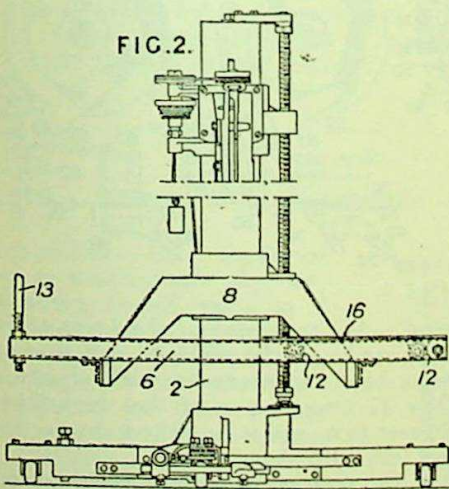
lowest position and clears the needle without axial movement in its highest position. The shuttle bar 20, Fig. 4, having a loop-taking point 41 has a flange 44 working in a groove in a race 42. The groove is closed by arcuate



keepers 46, 47, the former of which is fixed while the latter is pivoted and is held in position with its free end against a stud on the race by a spring-pressed bolt 14, Fig. 1. The shuttle is closed by a cover 12, Fig. 7, which is positioned

by means of fixed and movable locking-plates 33, 34 which engage in undercut recesses in the shuttle. The plate 34 consists of concentric portions of different radii and can be rotated by inserting a tool in the recessed stem 36. The shuttle thread is wound on a hollow rod 26, Fig. 9, extending axially from the cover 12, and the inner end of the thread is led out through a hole 27 where it is tensioned by a spring-pressed plunger 28. The race is cut away at 56, Fig. 4, leaving a point 57 which coacts with the shuttle point 41 in entering the needle loop. The shuttle flange and body are also recessed between the points *a, b*, Fig. 7, to receive in conjunction with the race-gap 56 one leg of the needle loop and to enclose it in the race on further rotation of the shuttle. The shuttle is oscillated by a finger 61 of less width than the distance between the shoulders *a, b*, and engaging between them. The finger 61 is cut away at 62, Fig. 4, to allow the shuttle-thread *T* a straight passage to the work. The finger 61 is integral with a disc 60, Fig. 1, fixed to a shaft 10. A rack 65 on a cam-actuated arm gears with a pinion 64 on the shaft 10 to oscillate the shuttle. The race is mounted on a slide 51 dovetailed into a guide 54 on the casing so that it can be moved into and out of operative position; the pinion 64 is elongated to allow of such movement without disengagement. The slide 51 can be locked by a screw 52, and its operative position is accurately determined by a stop-screw 55. The finger 61 and the disc 60 are respectively spaced radially and axially from the shuttle. When the loop-taking point 41 enters the needle-loop, the needle dips slightly to free the loop. Specifications 34/86 and 106,510 are referred to.

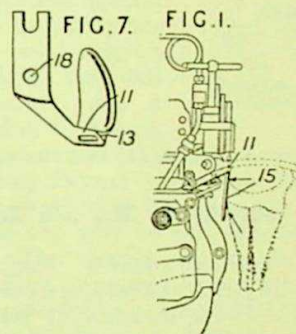
210,378. Thompson, W. P., (Union Special Machine Co.). Dec. 2, 1922.



Sack-sewing machines.—In a filled sack closing machine the sacks are supported on a carriage running on channel-section racks 6 mounted on a vertically adjustable bracket 8 projecting from the standard 2 which carries the sewing-head.

The wheels 12 of the carriage run on the lower flanges of the tracks, the upper flanges overhanging the lower and serving to protect the wheels from dust. A tipping bar 13 is arranged at one end of the tracks and when, on the completion of the sewing operation on a sack, the carriage and sack are thrust forward the sack tips over the bar and in its fall gives the carriage a backward kick to the other end of the track, where it is stopped by the engagement with the frame of a catch lever 16. A part of the lever projects through a slot in the floor of the carriage is depressed by the placing of a sack thereon so as to release the catch.

210,515. Kipperman, M. Oct. 31, 1922.

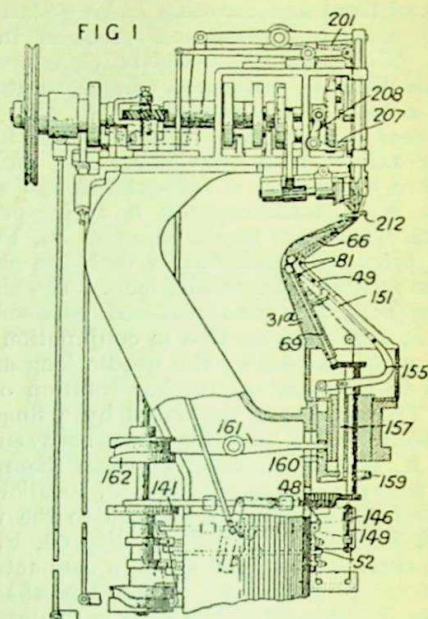


Boot-sole sewing-machines; outsoles, sewing.—The work-support 11 is made with an integral upper guide or guard 15. The forward edge 13, Fig. 7, of the work-supporting surface makes an acute angle with the line of feed. The support is secured in place by a set-screw at 18 and the head of the screw is locked by a grub-screw.

210,605. Reed, J. H., and Little Co., A. E. Jan. 9, 1923.

Boot-sole sewing-machines; lock-stitching by shuttles; rotary horns; presser-bars.—Separate take-up and stitch-setting devices are provided. The take-up comprises two stationary thread rollers 146 and a cam-actuated rod 141 carrying a thread-roller 48. The amount of take-up is varied by moving the rollers 146 relative to one another by means of a spindle 149 having right and left hand screw threads. The stitch-setting device comprises stationary thread rollers 81 and a reciprocating thread roller 49, all inside the rotary horn 31^a. The roller 49 is carried by a guided rod 151 pivoted to a lever 155 which is actuated from a cam 162 by means of a lever 161 and a slide 160 having a ring part 159 which keeps in engagement with a rod 157 throughout the rotary movements of the horn. The wheel is rotated through bevel gearing and two shafts 66, 69. The presser-bar is pressed on to the work by a spring 201 the radial end of which engages

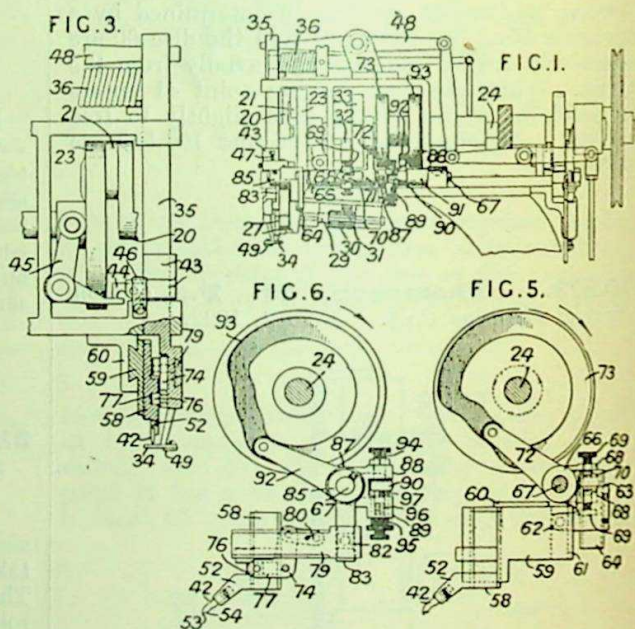
a pin on the bar. The bar is periodically lifted an invariable amount by a cam-lever 208 and a slide upon the presser-bar carrying a pivoted dog 207 which is turned by the lever 208 to clamp the presser-bar and is then lifted bodily with the bar. A screw stop determines the lowest position of the slide carrying the dog and thereby the amount of lift given to the presser-bar. An edge guide 212 is fitted on the presser-foot. The thread clamping and measuring devices are described in Specification 202,223, the work-incising and feeding devices in Specification 210,606, and the shuttle mechanism in Specification 210,360.



210,606. Reed, J. H., and Little Co., A. E. Jan. 9, 1923.

Boot-sole sewing-machines, lock-stitching by shuttle; channelling; perforating devices.—A work-feeding and incising tool is given a positive four-motion feed, the operating mechanism therefore being controlled by the presser foot or other work-engaging member, so that the tool incises the work to a definite depth irrespective of the work-thickness. The tool cuts a stitch receiving channel in the line of the seam and a transverse notch. A straight flattened barbed needle is reciprocated through a lever 21, Fig. 1, and a link 20 from a cam 23 on the main shaft 24. The shuttle is of the discoidal type and is mounted in a race 27 with its front face slightly inclined to the needle-path. The shuttle is oscillated through a pinion 30 on a shaft 29, by a rack 31 on a lever 32 pivoted to the frame and actuated by a cam 33 on the shaft 24.

Presser-bars with periodic control; presser feet; rotary horns. — The presser-foot 34, Fig. 3, partly surrounds the feed-point and the needle path, and has adjustably attached to its underside a sole edge-guide 49. The presser bar 35, Fig. 3, is pressed upon the work by a torsion-spring 36 fixed to the frame. A slide 43 on the bar 35 carries a pivoted dog 44, which engages with a bell-crank lever 45 pivoted to the frame and actuated by the cam 23. When the dog 44 is raised it grips and raises the bar 35. As the dog 44 is released by the lever 45, it in turn releases the presser-bar which is depressed on to the work, the slide 43 being independently depressed by a spring 46 to an extent limited by an adjusting-screw 47, Fig.



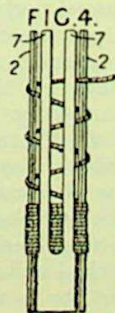
1, thereon. As the stroke of the lever 45 is constant, the stroke of the slide 43 and therefore of the presser-bar is constant for each adjustment of the screw 47 irrespective of the work-thickness. The presser-foot may be lifted by a treadle-operated lever 48.

Feed by devices engaging upper surface of work; channelling; perforating devices.—The feeding and incising tool 42, Fig. 6, has a cutting or indenting edge 54 as long as the longest stitch required for making the stitch-channel, and a transverse incising edge 53 which may be oblique to the line of feed. The tool 42 is fixed to an

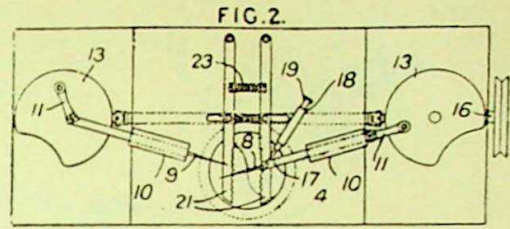
arm 52 of a vertical slide 58, Figs. 3 and 6, mounted in a horizontal slide 59, Figs. 3 and 5, which is mounted in a bracket 60 on the frame. Mounted in a vertical groove 61, Fig. 5, in the slide 59 is a block 62 to which is pivoted a slide 63 adjustably fixed to an arm 64 of a sleeve 66 loosely mounted on a shaft 67, Fig. 1. Abutment screws 69 in a pair of lugs 68 on the sleeve 66 engage a lug 70 on a second sleeve 71 loosely mounted on the shaft 67. An arm 72 on the sleeve 71 engages with a cam 73 on the main shaft 24. Oscillation of the arm 72 transmits positive feeding movements to the tool 42, the length of feed being adjusted by altering the relative position of the slide 63 and the arm 64. The point of engagement of the tool 42 with the work is varied, irrespective of the length of stitch, by adjustment of the screws 69. The slide 58 is reciprocated to incise or penetrate the work by means of a bell-crank lever 74, Fig. 6, pivoted to the presser bar. A block 76 on one arm of the lever 74 engages a horizontal slot 77 in the slide 58, while the other arm of the lever is linked to a slide 79 laterally movable in the presser-bar. A block 82 pivoted to an arm 83 of a sleeve 85 fixed to the shaft 67, slides in a vertical groove in the slide 79. Also fixed to the shaft 67, Figs. 1 and 6, is a sleeve 87 having a pair of lugs 88, 89 between which engages a lug 90 on a sleeve 91 loosely mounted on the shaft. An arm 92 of the sleeve 91 engages with a cam 93 on the main-shaft 24. The lug 88 carries an abutment screw 94, while the lug 89 carries a hollow threaded sleeve 95 in which is mounted a plunger 97, adjustably pressed by a spring 96. Clockwise movement of the lug 90 similarly oscillates the lugs 88, 89 and the arm 83 and a consequent movement of the feed-point towards the work until it encounters resistance sufficient to compress the spring 96 whereupon the feed-point is positively actuated to penetrate the work. When the presser-bar is raised to allow the feed to take place, the spring 96 keeps the feed-point in engagement with the work. The feed-point is positively raised by the engagement of the lug 90 with the abutment-screw 94. Specifications 202,223 and 210,605 are referred to.

210,678. Lloyd, W. May 2, 1923.

Work-guides.—An appliance for use in making pile rugs &c. by stitching looped yarn to a backing consists of a channel-shaped strip of metal &c. having outer prongs 2 round which the yarn is wound and inner prongs 7 having a space between them which receives the presser-foot of a sewing-machine. After the stitching has been carried along the length of the wound yarn the appliance is removed and the loops are cut.

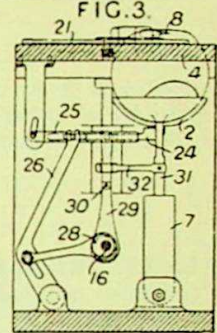


211,052. Tilley, O. May 18, 1923.



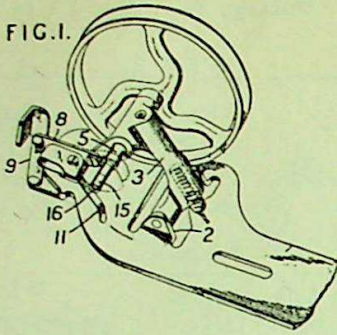
Covered ball sewing-machines; multiple-needle machines; machines with work-benders.

—A machine for stitching tennis and like balls comprises a spring-pressed cup 2, by which the ball is pressed against the back of a work-plate 4 having an opening through which the ball partly protrudes, and a pair of needles 8, 9 each of which penetrates the ball tangentially and enters the loop formed by the other. The ball is released by depressing the cup and to facilitate removal, the cup may be supported on a pivoted member 7. The needles are driven by links 11 pivoted on discs 13 geared to a shaft 16, and are guided by guides 10. A spreader 17, mounted close to the needle 8 to open the loop of the needle 9, is in the form of a pointed plunger moved against the action of a spring in its casing 18 by a rod 19 actuated by an eccentric on the shaft 16. The part of the ball which is being stitched is gripped and distorted during needle strokes by grippers 21 held in position by the cam-discs 13 and moved apart for the feed of the ball when recesses in the cams permit by a spring 23 after the formation of each stitch. Feed is effected by a dog 24 operating through a slot in the cup slidably mounted on a pivoted arm 25 which is actuated for feeding movements by a lever 26 and eccentric 28 on the shaft 16 and for vertical movement by an eccentric 29 having a connection with the arm which is jointed at 30 and embraced by a link 32 connected to the stem 31 of the cup. When the cup is lowered the joint 30 is broken and the feed member 24 moved away from the ball. In addition to the automatic feed the ball is turned by the operator to keep the stitch-line in the required position.



211,410. Fairweather, W., (Singer Manufacturing Co.). July 18, 1923.

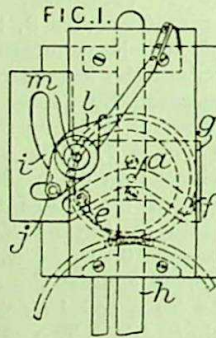
Sewing-machines, spools, bobbins, and the like, winding.—The spindle 5 of a bobbin-winding attachment is longitudinally split at one end into relatively yielding and non-yielding sector-shaped portions 15, 16 for frictionally engaging the bobbin. The spindle 5 is journaled in a bracket



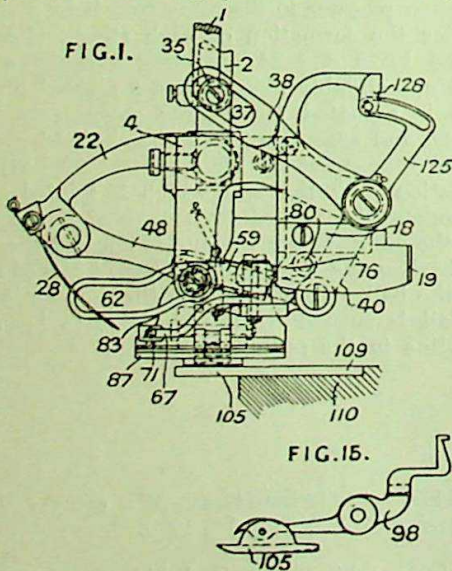
3 pivoted at 2 to the base-plate and connected thereto by a spring-opened toggle-mechanism 8, 9. The link 8 carries the usual trip-finger 11.

211,518. Harman, F. T. J. Aug. 24, 1922.
No Patent granted (Sealing fee not paid).

Sewing - machines; needles, driving; governing needle-thread. — A cross-head *g* mounted on the needle-bar *h* contains two profiled slots *f*, *i*, in which engage respectively a crank-pin roller *e* on the top-shaft *a* and a roller *j* on a take-up lever *l* pivoted at *m*.

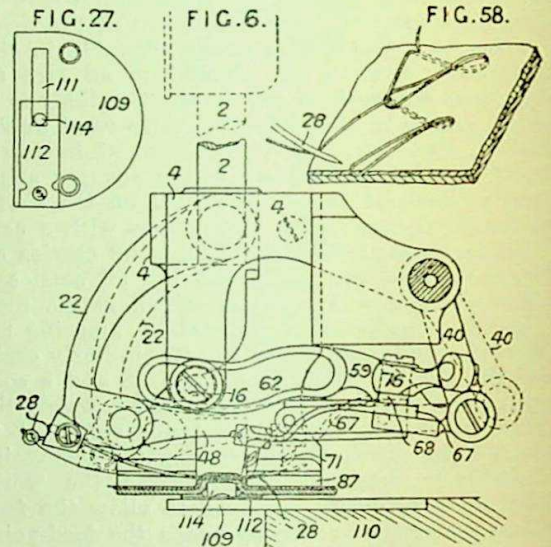


211,596. Cranage, H. B. Nov. 29, 1922.



Blind-stitching machines; blind-stitching attachments.—An attachment for application to an ordinary sewing-machine for producing blind-stitching comprises a curved needle and coacting looper making chain stitches, arranged above the

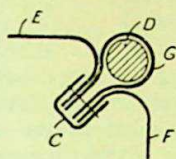
ordinary work-plate of the machine and actuated by the needle-bar. The mechanism is mounted on a bracket-member 4 secured by a set screw to the presser-bar 2. The curved needle 28 is mounted in an arm 22 pivotally mounted on the bracket and connected by a link 48 of adjustable length to a stud carried by the lower arm 40 of a bell-crank lever 38, 40, in the arm 38 of which is a slot 37 engaged by a roller 35 mounted on the needle-bar 1. A helical looper 71 is carried by a curved spring-controlled arm 67 mounted on a boss 68 pivoted on a stud carried by the arm 40 and has a curved slot 62 engaging a roller 16 on the bracket. The looper is thus moved to and fro synchronously with and in the plane of the needle. An arm 76 projecting from the boss 68 carries a ball-stud 80 which is moved in contact with a cam-surface 18 fixed to the bracket and formed with an in-



clined portion 19 which causes a lateral deflection of the arms 76, 67 as the needle recedes from its stroke and engages the looper in the needle-loop. Owing to the feed of the material the loop is carried by the looper diagonally across the material into a position for engagement by the needle on its next stroke as indicated in Fig. 58. The take-up comprises a slotted arm 125 secured on the link of the lever 38 and moving between spaced perforated lugs 128 carried by the bracket. A presser-foot 105, Fig. 15, is pivoted to a spring-restrained arm 98 pivoted in lugs carried by a plate 83 depending from the bracket. The presser-foot is accommodated in a slot in a work-plate 87 secured to the plate 83 and having a groove for the needle and clearance slots for the looper. A plate 109, Fig. 27, fixed to the bed-plate 110 of the primary machine carries a work-bender 114 which projects between the forked ends of a plate spring 112 mounted adjacent to a slot 111 through which the ordinary feed-dog works. In a modification the plate spring is replaced by a forked spring-restrained plate mounted on a member pivoted to the underside of the plate 109.

211,641. **Lines, W.** Dec. 27, 1922.

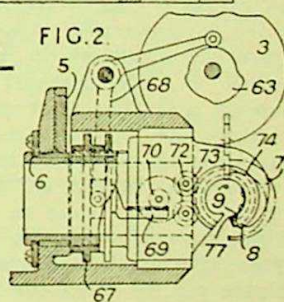
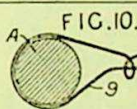
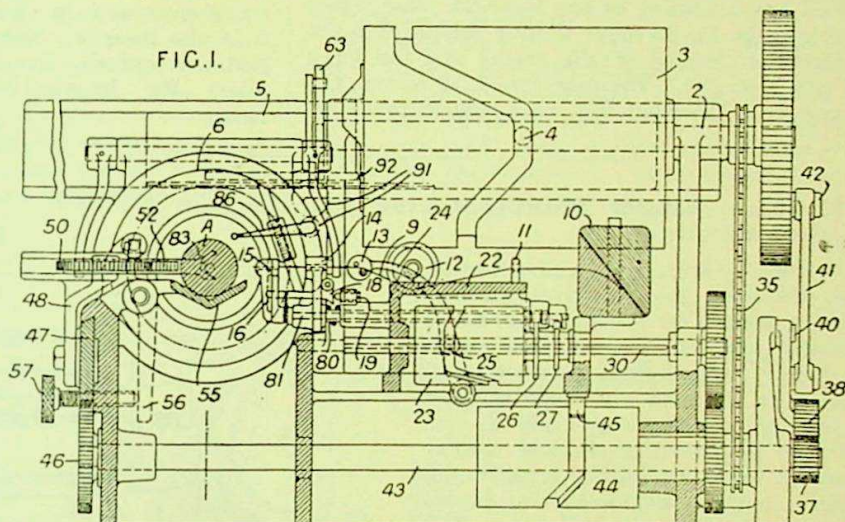
Seams.—In hoods for perambulators, baby carriages, &c. in which seams between the top E and sides F have been provided by folding inwards the edges and inserting therebetween a piping covering G folded around



a piping string D, a covering C of rubber or the like is sewn over the seam within the hood so as to enclose the free edges of the top E, side F and piping covering G to render the seam water-proof.

211,689. **Schelling, E.** Feb. 12, 1923.*Knot-tying devices.*

—In a machine for binding sausages, the filled skin A is passed through a rotatable sleeve 6 which carries a ring-shaped shuttle 8, the cord 9 being caught by the shuttle, looped around the skin A, pulled tight and cut; the skin A then being fed forward and the operation repeated. The sleeve 6 is rotated irregularly by a slide 5 which is moved in guides by a pin 4 engaging with a cam-track in a drum 3, the sleeve 6 being toothed to engage a rack on the slide 5. In a plate 7, protruding axially from the face of the sleeve 6, the shuttle 8 is mounted and is rotated about its own axis in either direction by a cam 63, Fig. 2, lever 68, and a sleeve 67, slidable on sleeve 6 and carrying a rack 69 which engages a pinion 70 and operates the shuttle through gearing 72, 73, and teeth 74 surrounding the shuttle. The shuttle has a radial slot and a spring 77 which grips the cord. The cord 9 is taken from a ball 10 and passes through eye 11, over a braking roller 12 and guide 13 and through grippers 14, 15 the parts 10 - 15 being mounted on a carriage 22, reciprocable on a shaft 30 by the engagement of a pin 45 with a cam-track in a drum 44 revolvable on a shaft 43 by a chain 35 and sprockets. A drum 23 slides, with the carriage 22, along the feathered shaft 30 and a cam-track engages a pin 25 whereby the cord-tensioning arm 24, carrying the guide 13, is operated. An oscillating lever 86, co-operating with the shuttle to form the knot as described below, is mounted on a shaft journaled in the main frame and is operated by the engagement of a pinion 91 with a sliding rack 92 which is moved by a cam on the shaft 2. The grippers 14, 15 are mounted on a sleeve 80 and concentric shaft 81 respectively and are moved to clip or release the cord by cams 26, 27 carried by the carriage 22 along the shaft 30. The cord-cutting knife 16 is slidably mounted on the gripper 14 and rests on one arm of a lever 18, pivoted on the gripper 14, which abuts against a stop on the carriage 22. The sausage casing is supported on one arm 55 of a lever; the other

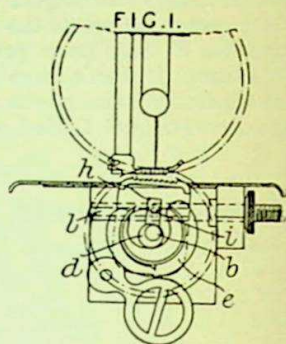


end 56 abutting against an adjusting-screw 57. The casing is fed intermittently by mechanism comprising, a crank pin 42, connecting rod 41, arcuate rack 38 pivoted at 40, pinion 37, shaft 43, pinion 46 and a racked slide 47 carrying a retractable forked member 83 which engages the sausages at the contraction, moves them along and after retraction is returned for the next movement. The fork 83 is advanced and retracted by a gear 50, journaled on an arm 48 attached to the slide 47, which engages a rack 52 on the fork 83, the gear 50 having a pin which contacts with adjustable stops at the limits of the movement of the slide 47. The machine which binds with a double loop as shown in Fig. 10, operates as follows; the cord 9, held between the pairs of grips 14, 15, is gripped, on a slight clockwise movement of the sleeve 6, by the spring 77. The sleeve 6 then moves anticlockwise to allow the grippers 14, 15 to swing bodily out of the path of the shuttle 8. A clockwise movement of slightly more than a revolution passes the cord around the casing, the portion of the

cord adjacent to the grippers then passing through the shuttle 8, which has so far been stationary relatively to the sleeve 6, the grippers 14, 15 becoming slightly tilted to allow this. The sleeve 6 then remains at rest and the shuttle revolves to twist the cord on itself, the loop being formed by the swinging lever 86. The sleeve then moves anticlockwise for a short distance, after which a complete rotation, followed by rotation of the shuttle and operation of the lever 86, forms the second loop. The grippers 14, 15 are then moved against the casing, moving the loops which are tightened by the lever 24, after which the grippers 14, 15 move slightly further into the contraction formed in the casing and the knife 16 cuts the cord. The grippers 14, 15 return, the casing is fed forward and the operation repeated.

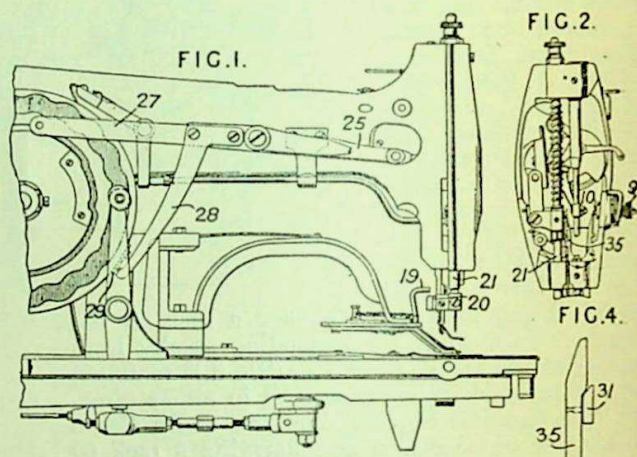
211,815. Harman, F. T. J. Aug. 24, 1922. No Patent granted (Sealing fee not paid).

Sewing - machines; feed by dogs.—A vertical feed-lever *c* mounted on an eccentric *d* on the under-shaft *b* pivots about a roller *i* which is mounted on a transversely-adjustable bar *l* and engages in a slot *h* in the lever *e*. Adjustment of the bar *l* alters the length of feed.



211,855. Singer Manufacturing Co., (Assignees of *Fifield, A. F.*) Feb. 20, 1923, [Convention date].

Sewing - machines; threads, controlling otherwise than in stitch-forming.—In machines for producing groups of stitches provided with a work clamp and, or thread-cutting mechanism means is provided for automatically releasing the tension device as the take-up is tightening the last needle-loop of a group about a detaining finger such means also acting before the lifting of the work-clamp. The device is described as applied to a high-speed machine of the kind described in Specification 206,710 including a rotary hook making two rotations for one needle stroke. A clamp-lifting rod 21 is controlled by a lever 25, having an arm 27 for manual actuation and an arm 28 for automatic actuation by the cam 29. A cam 31 on the rod 21 engages a lever 35 which actuates a tension-release pin 10 when the rod is lifted, sufficient

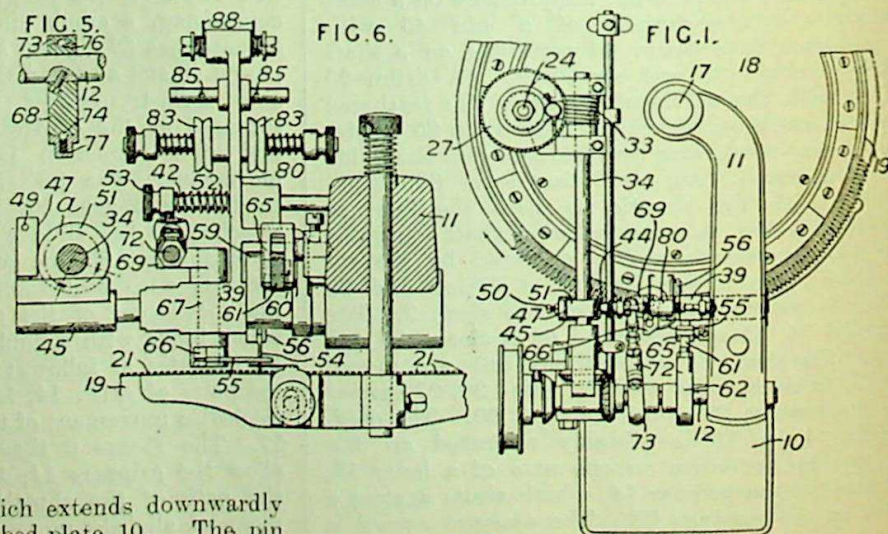


lost motion being allowed between a part 19 of the clamp and a lifting bracket 20 on the rod to ensure the release of the tension before the opening of the clamp.

212,064. Keyser, G., and Hepworth, J. W. Feb. 9, 1923.

Knitted - fabric sewing machines.—In a linking machine, the pin ring is continuously rotated and the stitch-forming mechanism is bodily reciprocated tangentially to the said ring so that the needle moves in time with the ring when in engagement with the work.

Feed. The pin-ring 19, Fig. 6, is revolvably supported by a disc 18 fixed to the shaft 17, Fig. 1, which extends downwardly from an arm 11 of the bed-plate 10. The pin



ring 19 is rotated continuously from a main-shaft 12 by means of a shaft 34 and a worm 33, a worm wheel 27 on a shaft 24 and an internal toothing on the ring 19.

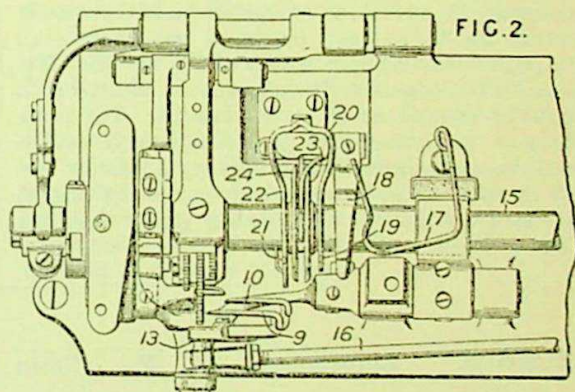
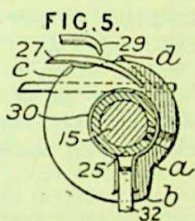
Stitch-forming devices. The needle and looper shafts are mounted upon a support 39, Fig. 6, mounted in the arm 11 and reciprocated in opposition to a spring 52 by a cam 51 which engages a part 45 secured to the support 39. A channel shaped contact member 47 is adjustably positioned on the part 45 by a set-screw 50, Fig. 1. The curved needle 54 is carried by an arm 56 fixed on a shaft mounted in the support 39 and is oscillated by means of a second arm having a pin slidingly engaging in the eye of a rod 61 of an eccentric 62 on the shaft 12. The looper 55 is mounted on an arm 66 of a rock-shaft 67 mounted at right-angles to the needle-arm shaft in the support 39 and a crank pin on a second arm 69 on the shaft 67 has a ball-and-socket con-

nection with an eccentric rod 72, 73. The contacting surfaces of the strap 73 and its eccentric 68, Fig. 5, are spherical so as to allow the eccentric-rod to rock laterally and follow the reciprocation of the support 39. The trap 73 is held in place by a ball 74 running in a groove 76 in the eccentric and maintained in place in the strap on a radial line at right-angles to the rod 72 by a spring 77. The connecting rod 61 is held from lateral movement by a slotted bracket 65 secured to the frame 11, and lateral movement of the support 39 is allowed by axial motion of the pin 60 in the eye of the rod 61.

Thread-tensioning device. The needle and looper threads pass through guide-eyes 85, spring-pressed tension-discs 83 and spring take-ups 88 on the arm 80 of the support 39, thence through guide eyes and along suitable grooves in the needle and looper arms to the needle and looper eyes.

212,300. Thompson, W. P., (Union Special Machine Co.). Dec. 6, 1922.

Chain-stitching and double loop stitching; multiple-needle machines. — A rotary device for controlling looper thread is arranged to take up slack after the point of the loop has entered the needle-thread loop the slack being held and gradually given up as the looper moves to the end of its stroke. The control comprises a guide-wire 17, spring nippers 18 and guide-eyes 19, 21 in wires 20, 22 which direct the thread across a pair of discs 23, 24 mounted on a sleeve 25 on the main shaft 15. As the part *a*, *b* of the coin-discs engages the thread a stripper finger 27 raises the thread over the nose *b* and it is then detained on the surface *b*, *c* by a finger 29 till the point *c* is reached the looper meanwhile entering well into the needle-loop. At the point *c* the thread falls below the finger 29 and rests on the radially-diminishing part *d* *a* which gradually gives up slack. At the point *a* the looper starts back and slack is taken up by



the rise *a*, *b*. The form of the cam at *c* allows reverse movement without fracture of the thread. The sleeve 25 is secured by a screw located between the cam-discs and covered by a spring member 30 held against rotation by a post 32 between its arms. The take-up is described in connection with a machine having two needles and two loopers 9, 10 making similar stitches and actuated in known manner by a rocker 13 and link 16.

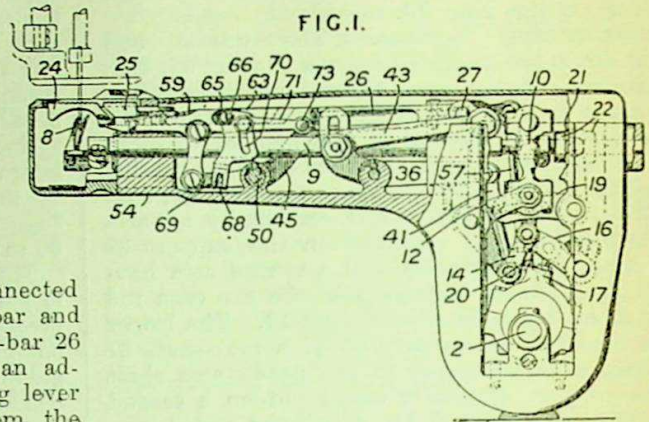
212,347. Buckley, Ltd., W., and Buckley, G. A. Dec. 29, 1922.

Embroidery. — Cloths such as shawls, table cloths, rugs, curtains, &c., are ornamented by embroidering patterns on them and then carding or otherwise raising the surface so that the

stitches of the embroidery are concealed. The embroidery may be of different colours, and is conveniently done in a cornely or like machine. When a shawl or table cloth is surrounded by a border of pattern the corner patterns may be embroidered over the woven pattern and carded.

212,614. **Thompson, W. P.,** (Union Special Machine Co.). Dec. 8, 1922.

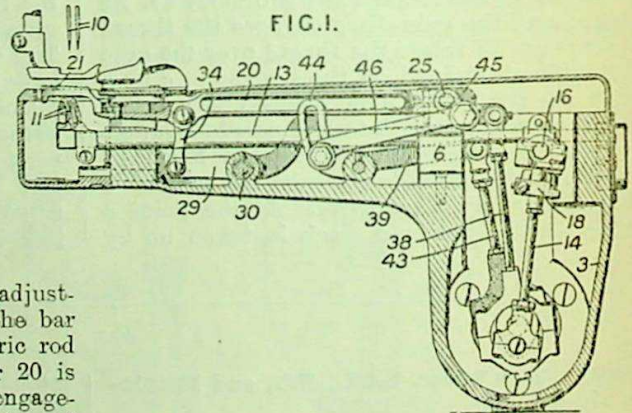
Sewing-machines; duplex feed; feed by dogs.—A differential feeding mechanism specially adapted for use in a small work-arm comprises a main feed-bar with an auxiliary feed-bar slidably mounted therein and given vertical reciprocation by a lever pivoted in the feed arm, feeding movements being simultaneously transmitted from the same operating shaft, while the differential movement is produced by a link on the main feed-bar connected to a lever pivoted to the auxiliary feed-bar and fulcrumed on the lifting-lever. The feed-bar 26 has sliding pivotal mounting at 27 and an adjustable link connection 43 with a rocking lever 36 actuated by an eccentric-rod 41 from the shaft 2. The vertical reciprocation is effected by a lever 45 mounted on an adjustable pivot 50 and connected to the bar 26 by links 54 while at its other end it is pivoted to an eccentric-rod 57. A bar 59 carrying the auxiliary feed-dog 25 is mounted in a slot in the bar 26 and is pivotally connected to a lever 63 by a pin 66 passing through a slot 65 in the side of the bar 26. The lever 63 has a slot 70 wherein is adjustable a link 71 pivoted at 73 to the bar 26. The lever 63 also is formed with a slotted fork 68 which embraces the lever 45 and engages a fulcrum pin 69 therein. This arrangement causes the dog 25 to have a slightly longer feeding stroke than the



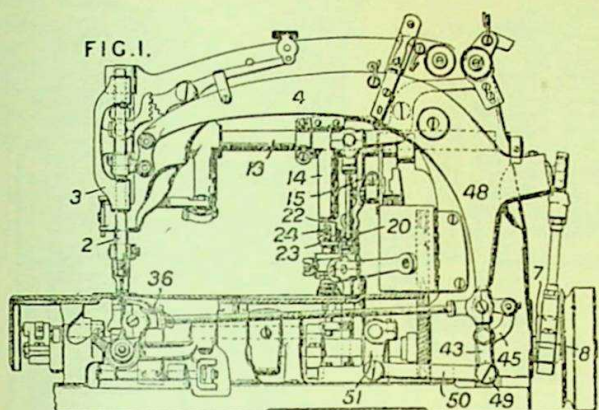
dog 24 and produces falling of the work. Stitch-forming mechanism of known type is described comprising a threaded looper 8 mounted on a shaft 9 which is given needle-loop-engaging reciprocation by mechanism comprising a link 10 connected to a ball-ended arm on the shaft, a bell-crank lever 12, a link 14 and a lever 16 actuated by an eccentric-rod 17 mounted on the main shaft 2. Endwise needle-avoiding movement is given to the shaft 9 by a rock-lever 19 connected to an eccentric rod 20 and having a forked arm connected to a collar 21 freely mounted on the shaft 9 between fixed collars 22.

212,615. **Thompson, W. P.,** (Union Special Machine Co.). Dec. 8, 1922.

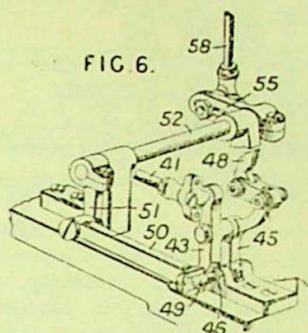
Sewing-machines; feed by dogs.—A feed mechanism for a machine of the type in which work is fed off a more or less cylindrical work-arm 3 comprises a feed-bar 20 to which the dog 21 is secured extending the length of the arm and pivotally mounted at its inner end whereat its longitudinal feed-motion is communicated. The bar is reciprocated vertically by a lever 29 fulcrumed in the work-arm. The lever 29 is pivoted at 30 on an eccentric adjusting-pin and is connected by links 34 to the bar 20; its inner end is pivoted to an eccentric rod 38 driven from the main shaft. The bar 20 is pivoted on a pin 25 which has a sliding engagement in a slot in a bracket 6. An extension 45 on the bar 20 is pivoted to a link 46 adjustable along a slot 44 in a lever 39 rocked by an eccentric rod 43. The machine to which the device is applied comprises a feeler 9, two needles 10, and two loopers 11 mounted on a shaft 13 which is given an oscillating and also an endwise move-



ment by an eccentric rod 14 engaging a ball-stud 16 on an arm rigidly connected to the shaft 13 and carrying a sleeve 18 to which is attached a fulcrum-arm for the rod 15 which is thus caused to communicate the two-fold movement.

212,616. **Thompson, W. P.**, (Union Special Machine Co.). Dec. 8, 1922.

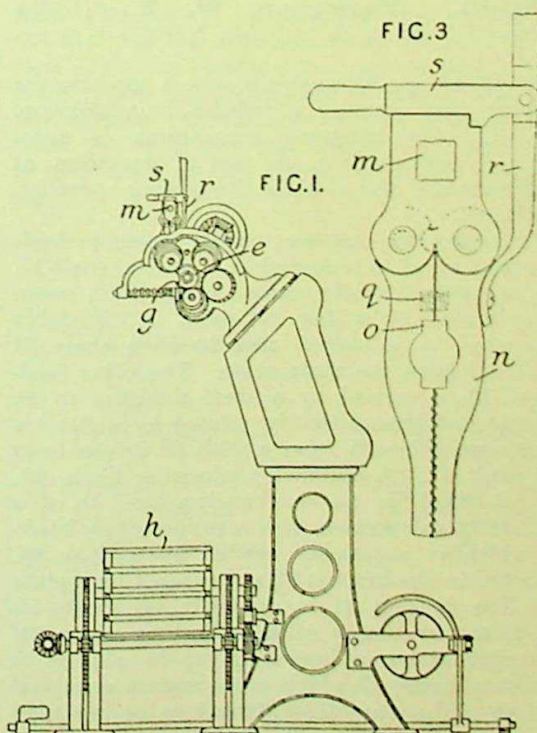
Sewing-machine needles, vibrating laterally; chain-stitching; loop-stitching. — In a sewing-machine in which the needle and the looper vibrate laterally in unison to form zig-zag stitching the lateral vibrations for both parts are divided from one member which can be connected to a constantly oscillating lever or be locked against movement. The needle-bar 2 is reciprocated by a needle-lever 4 from an eccentric 7 on the main shaft 8. The pivotally-mounted needle-bar gate 3 is vibrated laterally from a rock-shaft 13 on which is mounted an arm 14 connected to the usual arms 15 constantly-oscillating through variable amplitude. The arms 14, 15 are connected by a latch 20, 22 slidingly mounted in the lever 14 which is normally pressed down by a spring to hold the V-shaped under edge in a fixed groove and which can be raised to engage a square edged



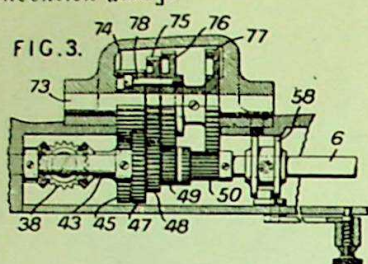
slot in the lever 15 by means of a treadle-operated table 23 which when raised bears upon a roller 24 on the latch 20, 22. A looper 36 is oscillated by a link-connection with a lever 43 fulcrummed at 49 on a link 50 and actuated by a lever 45 which is pivoted at 46 to the frame and link-connected to an extension 48 of the needle-lever 4. The looper is given needle-avoiding movements from an eccentric on the main-shaft 8. The link 50, Fig. 6, is pivoted to an arm 51 of a shaft 52. A second arm 55 on the shaft 52 is adjustably connected by a link 58 to an arm of the shaft 13. When the arms 14, 15 are connected, the shaft 13 is rocked to vibrate the needle laterally and to shift the pivot 49 of the looper-oscillating means, thereby shifting the working position of the looper.

213,133. **MacDonald, D. J., MacDonald, W. R., and MacDonald, Ltd., D. J.** April 17, 1923.

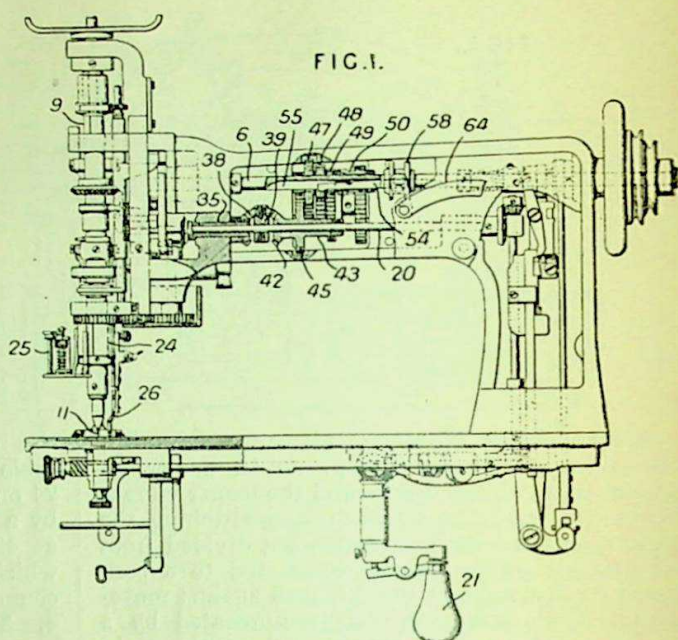
Running-stitch machines; sack-sewing machines. — In an overhead sewing-machine of the kind in which a needle-pad is arranged in conjunction with needle-cones the recess in the pad is arranged so that the seam can lie circumferentially therein, a greater depth of seam being thus obtainable. The machine described is adapted for sewing sacks and comprises a needle-pad *e* with a broad shallow recess *g*. The sacks are supported on a conveyor *n* and are secured by clamps slidable on a bar *m* and comprising jaws *n* latched against the pressure of a spring *q* by a catch *r, s*. The clamps are traversed by a travelling screw engaging half-nuts *o*. As the clamps reach a folding scroll adjacent to the sewing point the catch-levers *s* are released by a fixed cam.



213,226. **Singer Manufacturing Co.**, (Assignees of *Myers, W.*). March 24, 1923,
[Convention date].



Universal-feed sewing-machines;
cords and the like, attaching. — Change-speed mechanism is provided for varying the speed of rotation about the needle of the guide for the covering thread. The machine comprises known stitch-forming and feeding mechanism including a hook needle 11 reciprocated from a main shaft 6 and a feed-foot connected to a cylinder 9 the rotation of which is manually controlled by a handle 21 having link and gear connections with a shaft 20 geared to the cylinder 9. The spool-carrier 25 and guide 26 for the surface thread are mounted on a sleeve 24 connected by a train of gears to a sleeve 35 loosely surrounding the shaft 20 and geared by differential gearing 38, 39, 42 to a sleeve 43 also loose on the shaft 20. Separate gear-wheels 47 - - 50 spaced by washers are mounted loosely on the main-shaft 6 and are adapted to be selectively coupled therein by a key 54 located in a slot 55 in the shaft and connected to a collar 58 the



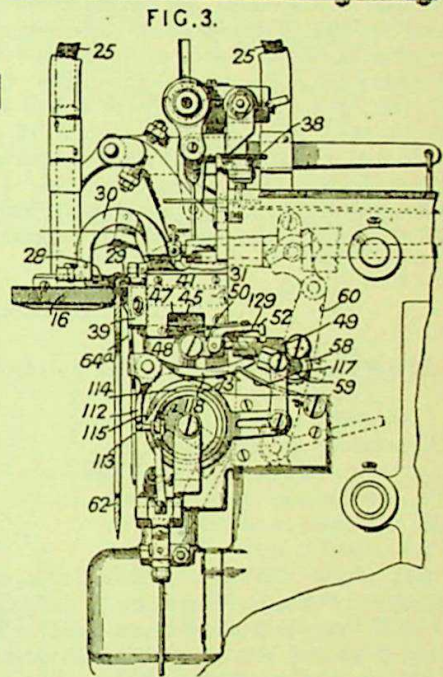
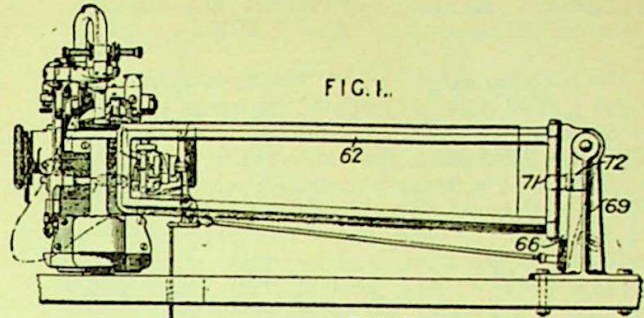
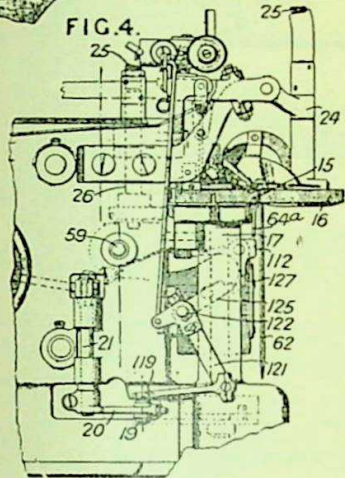
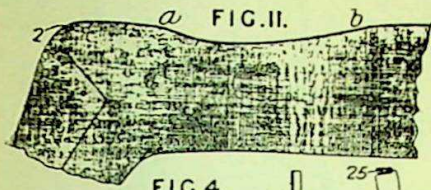
position of which is adjusted by a hand-actuated lever 64. The gear-wheels 47—50 are in mesh with wheels 74 - - 77 mounted on a counter-shaft 73 and locked together by bolts 78. The gear-wheel 74 is also in mesh with a gear-wheel 45 on the sleeve 43 so that by coupling one or other of the wheels 47 - - 50 to the shaft 6 four speeds of rotation may be given to the sleeve 43 and to the guide 26.

213,503. **Thompson, W. P.,** (*Union
Special Machine Co.*). Feb. 1, 1923.

Overhead sewing-machines.—In a machine for shaping and seaming a tubular knit stocking, Fig. 11, the trimming mechanism is automatically thrown into and out of operation at predetermined times while the sewing operation continues.

Trimming or cutting; work guides; feed. One feed-wheel 15 is carried by a vertical shaft 17, Fig. 4, intermittently rotated by a clutch member vibrated by a link 19 which is adjustably connected to a slotted arm 20 of a shaft 21 oscillated from the main shaft. The other feed-wheel 16 is carried by a shaft mounted in an arm 24 and intermittently rotated by a flexible shaft connection 25 from a shaft 26 driven from the shaft 17. A stationary trimming blade 28, Fig. 3, fixed in an overhanging arm 30 of a bracket 31 co-operates with a reciprocatory blade 29 which is adjustably carried by a slide 39, mounted in the bracket 31 and covered by a plate 41. The bracket 31 is vertically adjustable on the frame by means of an adjusting screw 38. The slide 39 has a depending lug 45 recessed to receive a spring 47 which bears against a vertical wall 48 of the plate 41. Pivoted to the lug 45 is a telescopic link, the parts 49, 50 being connected

by a spring-pressed latch 52. The part 49 is pivoted to a continuously-oscillating arm 58 fixed to a shaft 59 carrying a lever 60, which is oscillated from an eccentric on the main shaft. The stocking is slipped on to a guide-frame 62. Fig. 1, pivoted for horizontal movement to a bracket arm 66, which is in turn pivoted for vertical movement to a fixed standard 69. The frame is held in normal position by a lug 71 thereon engaging a spring-clip 72 on the bracket 66. A stationary bracket-arm 64^a, Fig. 4, engages the frame to align it with the feed wheels. A cam 114 is kept in contact therewith by a spring 117 pressing on the arm 118. A portion 115 of the cam gives the lever 112 its greatest outward motion, and, when this has passed, the nose 113 of the lever enters a hole in the cam 114 so as to hit the tail of a pawl therein, thus disconnecting the pawl-and-ratchet connection and stopping the cam 114. The cam 114 also carries a cam 73 which gives vertical movements to the work-frame for shaping the work. The length of feed depends on the pivot of the link 19 and the arm 20, Fig. 4, and this pivot is adjusted by means of a link 119 which is ball-jointed to the pivot and to an arm 121 fixed to a shaft 122. A spring surrounding the shaft 122 tends to rock the shaft so that the link 19 moves to an adjustable stop screw in the outer

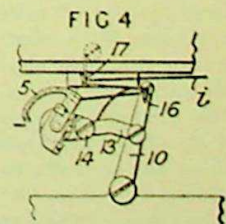
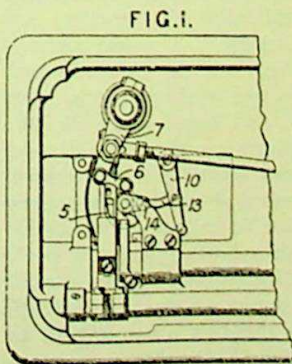


end of the arm 20. An arm 125 fixed to the shaft 122 is engaged by an arm 127 integral with the arm 112 so as to hold the shaft 122 against actuation by its spring during trimming. The arm 118, Fig. 3, of the cam-lever 112 engages a depending arm 129 of the trimmer latch 52. In operation, a false seam is sewn on the stocking from the point 2 to the point a, Fig. 11. At this point, the arm 121 is pushed inward, thus shortening the feed, whereupon the lever 125, normally in the position shown in Fig. 4 pushes aside the arm 127, so that the lever 112 releases the cam-actuating pawl, and the cams 114, 73 will be actuated. The resultant depression of the arm 118 releases the latch 52 to actuate the trimming mechanism, while the movement of the arm 121 allows auxiliary thread tensions to be applied. The work is now trimmed and seamed to the point b, Fig. 11. When the cam 73 has almost made a complete revolution the nose 113 of the lever 112 rides up the surface 115, Fig. 3, so that the lever 127 releases the arm

125. The arm 121 immediately rocks to lengthen the feed and the nose 113 enters the hole in the cam 114, thus stopping the vertical feed of the work, while the consequent motion of the arm 118 releases the auxiliary thread tensions, and stops the trimming mechanism. A false seam is now sewn up the remainder of the stocking leg.

213,509. Armstrong, J. J. V., (Union Special Machine Co.). Oct. 12, 1923.

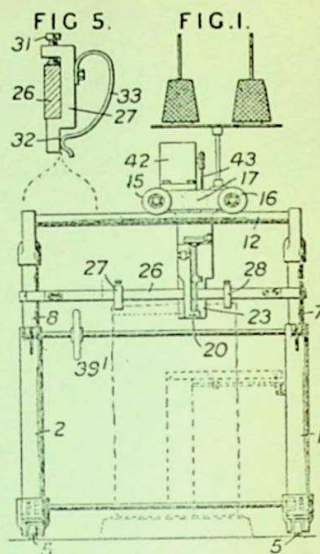
Chain-stitching; governing under-thread.—A looper-thread controlling-arm 10 is directly actuated through a link 13 from an arm 14 of the looper-support. The looper-thread *i*, which passes through a stationary eye 17 and an eye 16 on the arm 10 to the looper 5, is taken up during the forward movement of the looper till it begins to enter the needle-thread loop, the link 13 and the arm 14 then being in alignment; is given out during the remainder of the forward movement, and is taken up and given out in turn during the return stroke. An arm on the looper-support is link-connected to an actuating arm 7, Fig. 1, in such a way that the link 6 and the



lever 7 are in alignment at the end of the forward stroke, the looper and the arm 10 thus being given a decided dwell.

213,853. Armstrong, J. J. V., (*Union Special Machine Co.*) Nov. 7, 1923.

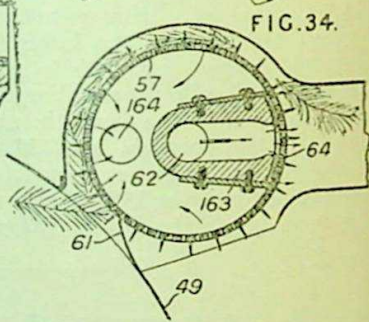
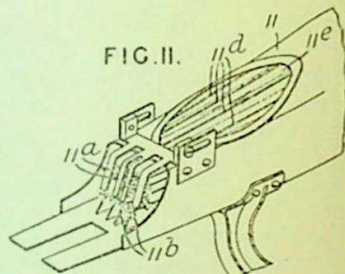
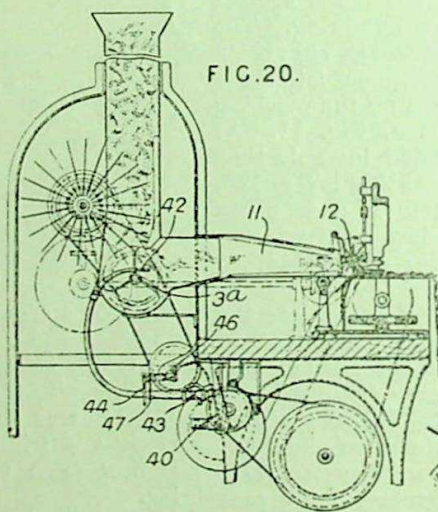
Sack-sewing machines.—A sewing-machine for closing filled sacks is mounted on tracks so that it is traversed across the mouth of a sack by the feed movement, the tracks being vertically adjustable in a frame mounted on rollers so that it may be moved up to the place where the sack is situated. A main frame 1, 2 supported by rollers 5 supports tracks 12 by means of posts 7, 8 adjustable on the posts 1, 2 by racks and pinions manipulated by a hand-wheel 39'. The sewing-head comprising a needle-arm 20 and work-arm 23 is supported by wheels 15, 16, 17 running on the tracks 12. The machine is driven by a motor 42 through a belt 43. Sacks to be sewn are secured in clamps 27, 28 adjustable on a bar 26 adjustably supported on the posts 7, 8. The clamps comprise a block 27 clamped to the bar by a screw 31 and a spring 33 which nips the sack against a serrated part 32 of the block.



214,748. Wever, F. Feb. 3, 1923.

Stitching tufts to fabrics.—

Apparatus is described for conveying feathers to a sewing machine by an air-current for attachment to fabric. In one modification for use with light feathers which stick together, the apparatus, which may feed several sewing machines simultaneously, comprises a charging shaft 1, Fig. 1, with ribs 1^a, 1^b the lower end of which is slit for the passage of needles 2^a on a cylinder 2, which carry the feathers around until they are stripped off by fork-shaped needles 3^a on a cylinder 3, the needles 2^a being drawn radially inwards as they pass the needles 3^a. The cylinders 2, 3 are driven from the main shaft 25 of the sewing-machine through bevel-gears 27, 28, Fig. 14, a four-stepped toothed disc 29 which is adjustably geared with a pinion 33, a shaft 34, and bevel gears 35, 36. A fan 5 draws the feathers up the tube 4 and blows them into a gauze cylinder 6, in which the pressure becomes normal and the feathers then drop into a chamber 7, in which revolving arms throw them in a thin layer round the periphery. A fan 8 intermittently sucks small quantities of feathers through an automatic trap-valve 9 and blows them through a conduit 10 to a mouthpiece 11, Fig. 4. The valve 9 is actuated through a lever 9^b from a two-part cam 9^d which is adjustable to vary the duration of opening of the cam. The mouthpiece 11, Fig. 11, has a grate 11^b and adjustable prongs 11^a against



which the feathers place themselves transversely, and between which work pins on a rotating shaft 12, Fig. 4, to carry the feathers with the help of the outflowing air under the presser of the sewing-machine. The amount of feathers pulled through by the pins depends on the adjustment of the prongs 11^a. Ribs 11^d in the mouthpiece prevent eddying, and a transparent cover 11^e permits observation of the feed. An adjustable ventilating slide 16, Fig. 4, on the conduit 10 allows the escape of air, inside ribs between the holes preventing clogging thereof by the feathers. The shaft 12 is mounted in oscillable arms 12^b mounted on a shaft 22 which rotates the shaft 12 through gears 21, 21^a. The shaft 22 is driven by a one-way roller clutch 23 which has an arm

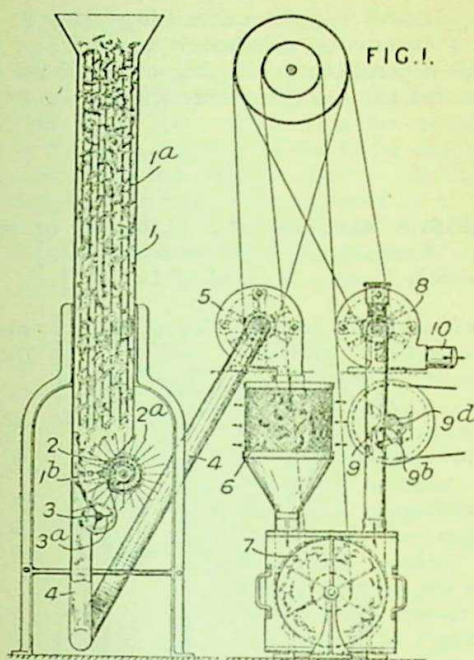


FIG. 1.

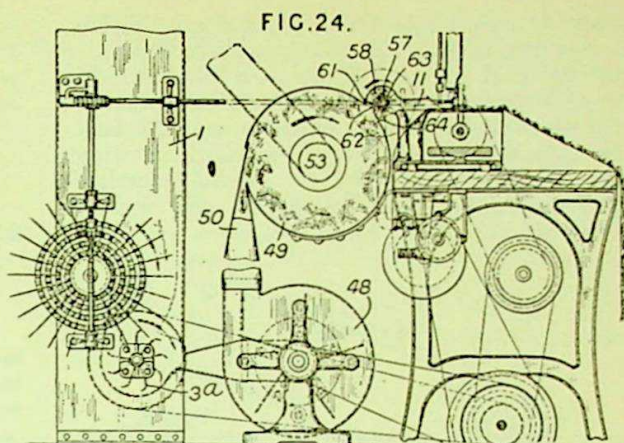


FIG. 24.

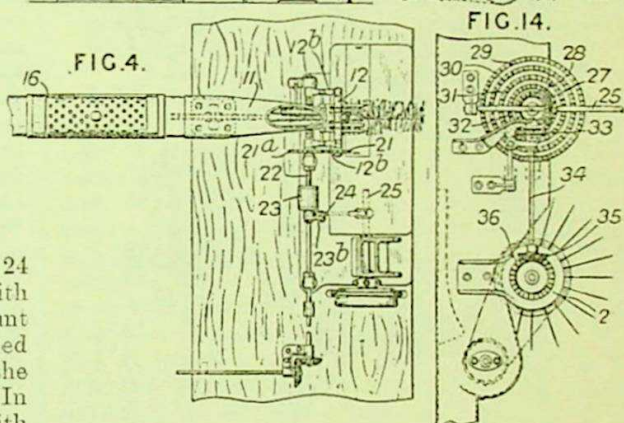


FIG. 4.

FIG. 14.

23^b adjustably connected to an eccentric rod 24 on the shaft 25. The clutch 23 is provided with a back-motion preventing device. The amount of feathers fed to the sewing-machine is varied by adjusting the gearing 33, 29 - 32, and the connection of the arm 23^b and the rod 24. In a second modification, Fig. 20, for use with heavy stripped tail feathers which do not require loosening, the feathers are taken direct from the forks 3^a to the mouthpiece by an intermittent blast through outlets 42 from a blower 40. An air-valve 43 can be scale-adjusted for different quantities of air and the blast is controlled by a cam-actuated slide 44, the cam 46 for which also operates an outlet 47 which opens to prevent detrimental back-pressure when the slide 44 is closed. In a third modification for use with short feathers which require to be finely distributed the feathers are drawn from the forks 3^a by a fan 48, Fig. 24, and are blown through a flat tangential pipe 50 into a centrifugal drum 49, in which the circulating air current is retarded by a continuously admitted stronger air-current, so that the air with surplus feathers flows through a central aperture 53 back to the shaft 1. Needles 58 on a cylinder 57 which is

mounted on a hollow fixed shaft 62 work in slots between tongues 61 adjustably bent from the casing of the drum 49. Air forced through the shaft 62 passes through a slit 63 therein of a peripheral length equal to the needle pitch and through holes 64 between the rotating needles and blows the feathers off the needles into the mouthpiece 11. In a modification, the needle-cylinder 57, Fig. 34, rotates on a disc, in which the tubular shaft 62 is arranged to give an air-blast through a radial tube 163 to the holes 64, while a tube 164 in the disc is connected to a fan to suck air through the holes 64, and so hold the feathers against the cylinder 57.

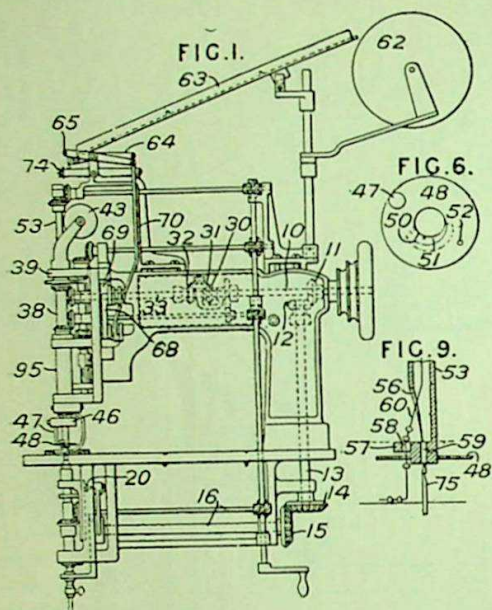
Presser-feet. — The sewing-machine presser-foot has air-channels on its lower surface so that the pressure air can flow freely to the rear of the machine.

214,752. Groebli, J. A. Feb. 6, 1923.

Universal-feed sewing-machines; surface threads, attaching. — In a bead-sewing machine in which a stitching-thread for attaching the bead-thread to the fabric is wound round the bead-thread, a rotary device is used for positively feeding the beads and for looping the stitching-thread. A shaft 10, Fig. 1, drives through gearing 11 - 15 a shaft 16, which actuates the sliding nipple-support 20 and the needle-carrier, and through gearing 30-32 a shaft 33 which in

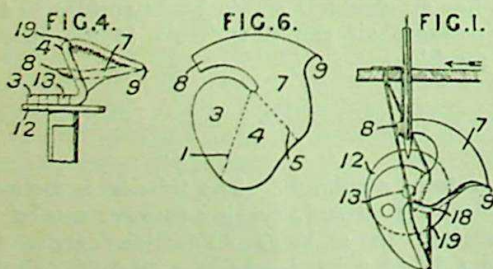
turn rotates a tube 38. The tube 38 is mounted in a bearing 39 and, passing through a tube 95, terminates in a block 46 which carries the spindle 47 of a bead separator 48. A tube 53 centred within and spaced from the tube 38 is gapped at 56, Fig. 9, for the passage of the bead-thread 60 which passes through it and carries a foot 57, pierced at 58 and 59 for the bead-thread and the needle 75 respectively. The tube 38 supports a thread-reel 43, Fig. 1, the thread from which passes between the tubes 53, 38, through a hole in the block 46 and vertically

down through a hole 52 in the separator 48, Fig. 6, to the fabric. In the separator 48 is a gap 50, Fig. 6, below which is a shelf 51. By the rotation of the tube 38 and the separator 48, the stitching-thread is carried round the bead-thread and the needle above the last bead which has fallen so that when the needle completes the stitch the bead or beads are securely attached. The bead-thread, on which are strung



the beads, is wound on a reel 62, Fig. 1, and passes through a trough 63, past feeder-bars 64, 65, and a sprocket-wheel 74 into the tube 53. The bars 64, 65 have lateral arms extending across the front of the trough and are actuated by rods 70 which are connected to bell-crank levers, the free arms 68 of which are actuated by a cam 69 on the shaft 33.

215,288. Fairweather, W., (Singer Manufacturing Co.). Jan. 30, 1924.

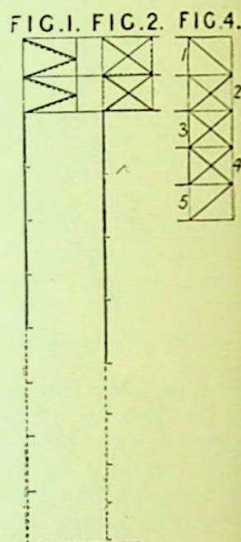


Chain-stitching.—A rotary chain-stitch looper is formed by bending a blank of the form shown in Fig. 6, along the dotted lines 1, 5. The part 3 is secured by a stud 13 to a looper-carrier disc 12, the part 4 is bent at an angle of less than 90° to the part 3 to form a loop-spreading wing, and the part 7 is bent at 19 and provides a loop-

seizing beak 8 and loop-detaining point 9. The wing 4 is curved as shown at 18, Fig. 1 to prevent a thread-loop slipping off until the beak has carried the next loop through it.

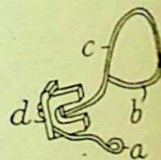
215,359. Graaff, C., (Assignee of Brase, W.). April 30, 1923, [Convention date]. Void [Published under Sect. 91 of the Act].

Multiple - needle machines; quilting-machines; stitches and seams.—A zig-zag stitch or quilting-machine is provided with two or more needles arranged tandem-fashion in the direction of feed, the feed stroke being of double the normal length. Each needle has a separate supply of thread and the stitches are concatenated by a single shuttle thread which follows the course of the dotted line in Fig. 2, the heavy black lines indicating the needle thread. Fig. 4 shows at 1 - 5 the positions of five successive needle strokes and the stitches produced thereby. As compared with a single laterally displaced needle the total amount of needle and shuttle threads employed is somewhat less as shown by a comparison of Figs. 1 and 2.



215,363. Härtling, E. April 30, 1924.

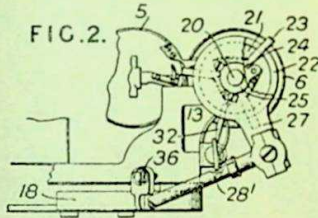
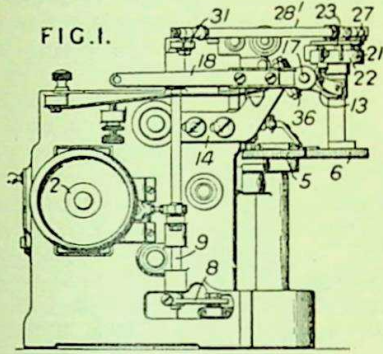
Sewing-machines; presser-feet.—A piece of steel wire is bent to form a presser-foot *a* and a loop *b, c* and is horizontally pivoted to a clip *d* for mounting on the presser-bar of a sewing-machine. The loop *b, c* closely embraces the needle-holding screw, which coacts with the portion *b* to hold the presser-foot on the work when the needle is in the work, and with the portion *c* on the upstroke of the needle to swing the presser-foot off the work.



215,660. Armstrong, J. J. V., (Union Special Machine Co.). Oct. 12, 1923.

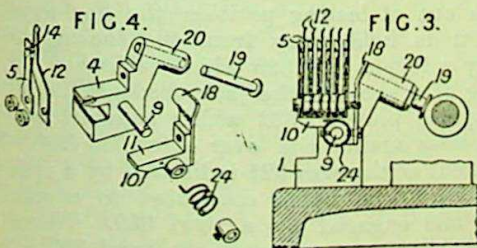
Overhead sewing-machines.—Both feed-wheels are directly actuated so as to rotate intermittently in unison. The inner feed-wheel 5 is actuated through an intermittent clutch mech-

anism by a lever 8 on a shaft 9 which is oscillated by an eccentric on the main shaft 2. The shaft 20 of the out feed wheel 6 carries a disc 21, a flange 22 on which engages slotted spring-controlled dogs 23. The dogs 23 engage in recesses 24 in an oscillating sleeve 25 and act as intermittent friction-ratchet feed. Retrograde movement of this device is prevented by a spring-controlled dog 32. A link 28' ball-jointed to a lever 31 on the shaft 9 and to an arm 27 on the



sleeve 25, actuates the sleeve. The feed is varied by adjusting the effective lengths of the levers 8, 31. The outer feed-wheel mechanism is carried by an arm 13 fixed to a rod 17 pivoted in a bracket 14 adjustably mounted on the casing. A lever 18 fixed to the rod 17 is spring pressed to hold the wheels 5, 6 pressed together, and is treadle actuated to separate the wheels for inserting the work, stops 36 being provided.

215,688. Fairweather, W., (Singer Manufacturing Co.). Jan. 9, 1924.



Multiple-needle machines; governing under-thread.—A multiple thread-tension device comprises relatively-movable sets of interleaved nipper-elements, which may be arranged either for intermittent, or steady tension. The device is described with reference to the looper-thread controls of a multiple-needle machine and com-

prises a standard 1 having a face 4 on which are rigidly mounted spaced nipper springs 5 having slotted thread-guiding lugs 14. Nipper springs 12 which engage between the lugs 14 on the respective springs 5, are rigidly mounted in spaced relation on a face 11 of a member 10 pivotally mounted on a pin 9 on the member 1. An offset portion 18 of the member 10 is positioned in front of a lug 20 on the member 1 so as to be intermittently moved in opposition to a spring, 24, Fig. 3, by a cam-actuated plunger 19 to tension the threads. In a modification applying a steady tension an adjusting screw replaces the plunger 19.

215,772. United Shoe Machinery Corporation, (Assignees of Lawson, R. H.). May 9, 1923, [Convention date].

Boot-sole stitching and lasting machines; starting and stopping gear; lasts, mounting. — Both sides of a shoe upper are progressively and simultaneously lasted and secured by stitching to the sole. Means are provided for compensating for the curvature of the sole so that the pull of the grippers shall be normal to the longitudinal curve, so that the opposite sides shall remain in correct vertical relation and so that the needles shall move normally to the attachment rib. The jack is movable into and out of operative position and this movement being variable in extent according to the size of the shoe is utilized to regulate the feed mechanism automatically. Automatic stopping mechanism is provided which disconnects the lasting mechanism and pattern cam from and couples a jack-shifting mechanism to the driving mechanism the machine being automatic except for the removal and replacement of a shoe &c. the movement of the jack and shoe into the starting position. The machine is used in the manufacture of shoes according to the method described in Specification 206,175. It is found necessary to secure the upper by temporary means.

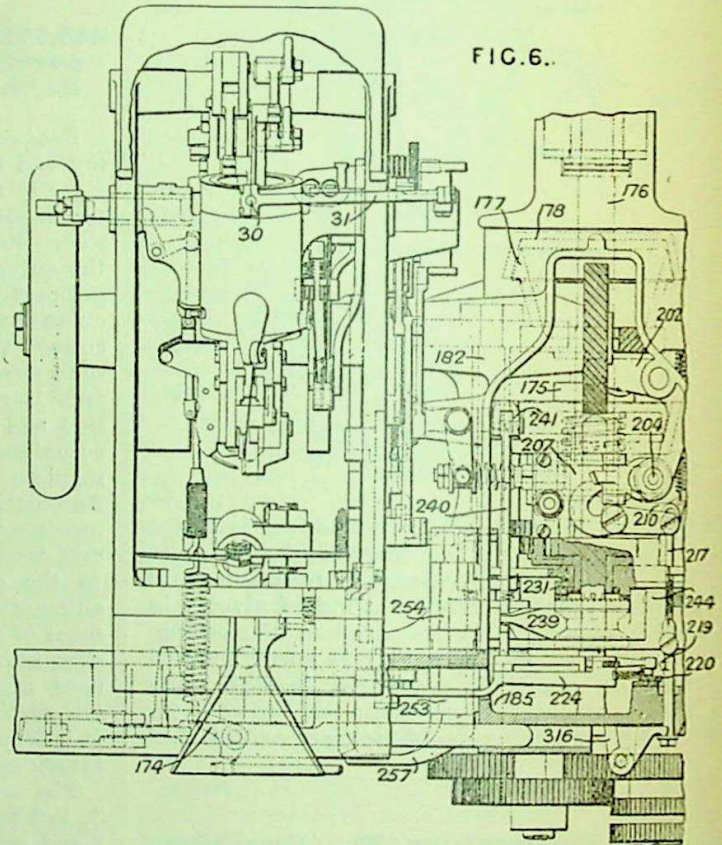
The sewing and lasting tools comprise needles 3, locking-loop forming needles 4, loop detainers 5 and grippers 1 each set being carried on a support comprising a cylindrical part 6 and carrying a block 9 which serves as a presser-foot and as a channel guide to engage the ribs of the boot-sole. The parts 6 are mounted in blocks 10 carried by trunnions 11, 12 from which project arms 15 having intermeshing segmental gears 16 which thus cause the stitch-forming and lasting devices to move in unison. The channel guides are pressed against the rib by a spring 18, Fig. 9 the tension of which is varied by a connection 19, 20 to the pattern cam mechanism. To the arm 17 to which the spring is attached is secured a rod 21 connected through a lever 22 to a bar 23 which may be locked by locking rolls 25, releasable by a plunger 26 controlled by a cam 27 so as to lock the supports during the stroke of the needles 3. The supports 6 are given rotary positioning movements through rods 31, levers 32 and links 33 actuated from the pattern-cam so as to compensate for the edge curvature of the

sole and rib. The gripper-jaws are caused to approach by a pin and inclined slot device and a friction device is employed to cause the closing of the jaws to take place before their upward movement comprising a toggle 46, 48 the member 46 of which carries the actuating pin and is connected by a rod 49 to a cross head 50. The cross-heads 50 are connected to a cross-head 52 by a link connection 51 allowing rotation of the cross-head 50. The cross-head 52 is actuated by a cam on the shaft 28 through a lever 54 connected to a spring 57 the tension of which is adjustable by the pattern-cam mechanism so as to vary the upward pull on the grippers.

The jack-support comprises a hollow spindle 118 connected by a gimbal joint to a ring 119 mounted on an arm 123 which is pivoted to swing vertically on a support 124. The support 124 is mounted on a vertical axis in a frame 125 mounted at its lower end on a horizontal axis. The arm 123 is urged upwardly by a cord 126 connected to a spring. The ring 119 is connected to the frame 125 by a parallel motion link 131. The jack is fed longitudinally by mechanism comprising a feed-lever 132, Fig. 3, connected to the jack by a bar 133 and to a cam-actuated lever 134 by links 135, 136 connected at their pivoted ends to a guiding link 137. The lever 134 is actuated by a pattern cam 138 on a shaft 139 rotated once in each complete lasting operation. The link 137 is pivoted on a lever 140 held locked during the operation on a shoe but movable when unlocked to vary the length of feed. The rod is locked by mechanism comprising a rod 142 which may be clamped within a block 143 by cam-levers 144 operated by a rod 146 connected to an arm 147 linked to a lever 149 which is engaged by a catch 150. A shoe is placed on the jack out of operative position and the act of so placing it unlocks the lever 140. In moving the jack to operative position the toe of the jack and therefore the rod 133 will require to be moved through varying distances according to the size of the shoe and hence the feed mechanism will be set for feeds of different length. The frame 125 is actuated to give the transverse tipping movements to the jack by a cam on the shaft 139 engaging a lever 151 on a shaft 252. The support 124 is swung to give longitudinal tipping movements by a cam on the shaft 139 and connections 154, 155. The turning movements of the supports for the stitch forming and lasting devices are conveyed by mechanism comprising levers actuated by cams on the shaft 139 and connected to vertical rock shaft 160, 161, each having an arm retained by a spring in engagement with an arm on one of a pair of shafts 164 which have arms connected to the links 33. The mechanism for varying the

tension of the spring 18 which tends to separate the supports comprises a cam 167, Fig. 42 and a lever 169 connected to the rod 20. The tension of the spring which determines the strain of the grippers is varied by a three-armed cam 168 and an arm secured to a rock shaft 17 carrying an arm connected by a link and lever 174 to the spring and is first light at the heel then heavy and then light again.

The jack comprises a toe supporting arm 320 rigid with the spindle 118 and a pivoted heel supporting arm 321 carrying the last mounted on pin 323 supported by a lever 324 controlled by a segmental gear 325, 326 and a spring 327 so as



to press the toe against its support. When the jack is out of lasting position the heel-supporting arm is held away from the toe-supporting arm by a toggle 328, 329 which is broken by the placing of a shoe on the jack through the action of a spring plunger 332 which engages the last and presses against the lever extension 334. The movement of the arm 321 is limited by a rack-bar 335 engaging a pinion connected to a ratchet-wheel 338 engaged by a pawl 339. When the arms 320, 321 are separated the pawl 339 is held out of contact with its ratchet wheel by a projection 340 and as this is removed owing to movement of the bar 335 a catch 341 takes its place until released by the action of a feeler-lever 343 which is engaged by the toe of the shoe. A dash-pot comprising a plunger 346 operated by pinion 337 retards the movement of the arm 321. The toggle arm 329 is pivoted to a lever 330 which

may be actuated to straighten the toggle by a lever 349 having a segmental gear engaged by a pinion on a shaft 353.

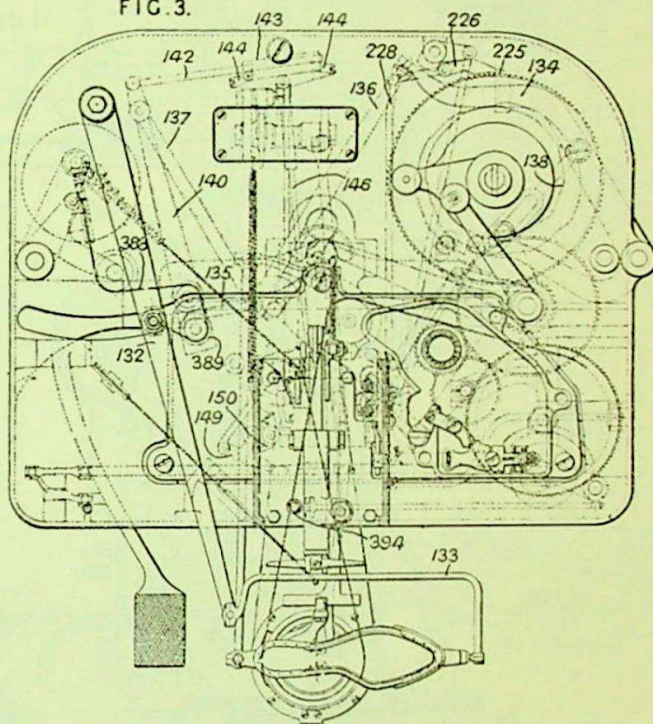
A gauge for the jack is provided comprising a bar 303 having a vertical slot 304 flared outwardly and engaged by a stud 302 on the jack-bar, the bar 303 sliding in a guideway and adapted to be moved into operative position by a hooked link 306 engaging a pin on a cutter operating arm 283.

The lasting and pattern cam mechanism are driven from a sleeve 175, Figs. 6 and 7, clutched to a power shaft 176 by a clutch 177, 178 and geared to the shaft 28 and also to a shaft 182 having a unidirectional clutch connection with a shaft 185 actuating the pattern cam so that the latter can be moved independently. The shaft 185 is geared to a shaft carrying a series of similar gear-wheels meshing with a gear-wheel on the pattern-cam shaft 139. This shaft carries a number of sets of cams corresponding to different styles of shoe which may be brought into operative position by longitudinal displacement of the shaft 139 effected through manual screw adjustment of a shaft 190 on which the shaft 139 rotates, automatic means being provided for moving the cams out of action while the adjustment is effected. The cam 168 controlling the pulling strain is driven by gearing including a gear 201 causing a rotation of one third of a revolution for each rotation of the shaft 139 and is therefore formed as a three armed cam. The cam 167 is driven from the gear 201.

The stopping-mechanism which comes into operation when the lasting is completed comprises a bell-crank lever 202 engaging a cam groove 203 in the sleeve 175 and engaged by a locking bolt 204 which is held retracted during lasting so that the lever vibrates idly. The bolt 204 is carried by a spring controlled carrier 207. When the bolt is released and engages the lever the carrier is moved to the right and then partly returns till stopped by a spring latch 210. The lever being now held stationary the rotation of the cam 203 disengages the clutch and applies a brake. The means for holding the locking-bolt retracted comprises a spring-pressed rod carrying a detent 219 which engages a latch 220. The latch 220 is retracted to stop the machine by connections with the pattern-cam shaft comprising a lever 224, a dog 230, Fig. 5, in the form of a bell-crank, an arm 228 engaging the dog and a lever 226 adapted to be engaged by a block 225. Mechanism which comes into action when the lasting mechanism is disconnected for depressing the jack, severing the threads moving the jack outward and to giving a final movement to the pattern cam mechanism and comprises an eccentric 231 adapted to be clutched to a continuously rotating shaft by a lever 239 engaging a clutch-block 233 and engaged by a projection on a rod 240 connected to an arm

241 on a rock-shaft 400 which also carries an arm 242 having a gear segment meshing with a gear on a bell-crank 243 a fork on which engages the bolt carrier 207. The lever 239 is held in de-clutched position by a spring pin 244. When the stop-motion is operated the movement of the carrier 207 will raise and lower the rod 240 and effect the engagement of the clutch 233 with the eccentric. The mechanism actuated by the eccentric includes vertically aligned rock-shafts

FIG. 3.



253, 254 connected by a key and slot the upper shaft having an arm connected to the link of the eccentric 231. The rock-shaft 253 has an arm 257 gearing with a segment 258, Fig. 7 on a shaft 259. A pin 261 on the segment engages a loosely mounted plate 260 which is held in a vertical position by a spring latch 262, Fig. 27. The lever 260 which depresses the jack and moves it outwardly has a cross-bar 264 which during the forward movement of the lever engages the surface of a bar 265 connected to the jack spindle and first depresses it and then moves it forward. A brief dwell occurs between these movements during which the jack is locked while the thread cutter operates. The locking mechanism comprises a brake operated by a cam 272 and after its purpose has been effected the bar 262 is given its final movement by the engagement of the bar 264 with a spring plunger 274.

In order to reset the cam shaft 139 and cause it to complete its revolution a rod 294 connected to the stop-motion eccentric 231 is arranged to move a lever 295 carrying the pivot of the stop-pawl 226 first to release it from the block 225 and then to engage it with the further side of the block so as to rotate the cam shaft.

The machine is started by the operation of a treadle 311 connections from which move a lever

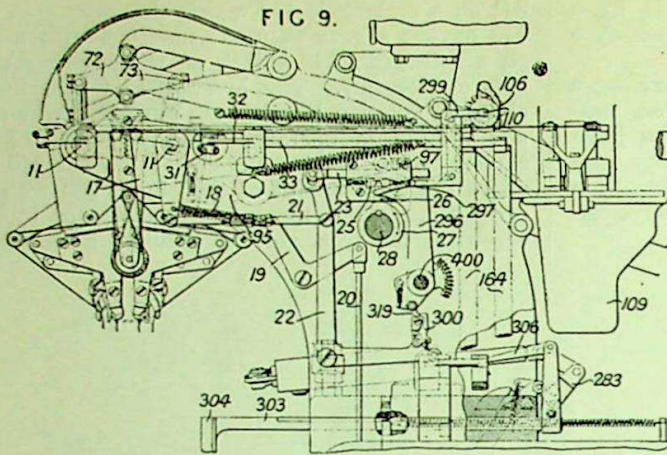


FIG. 7.

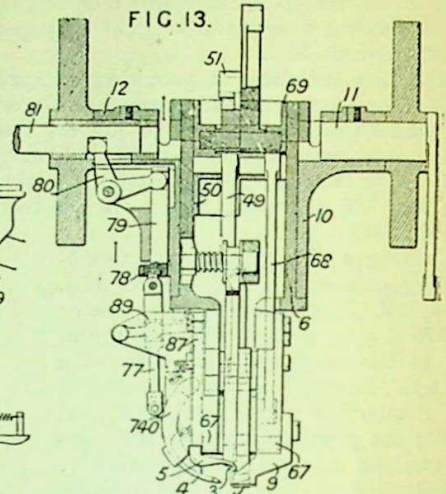
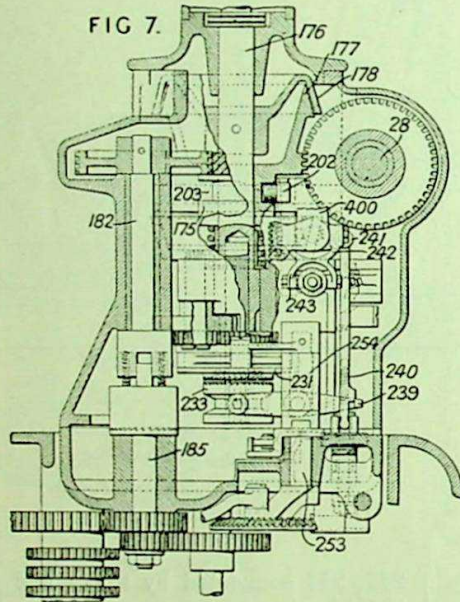
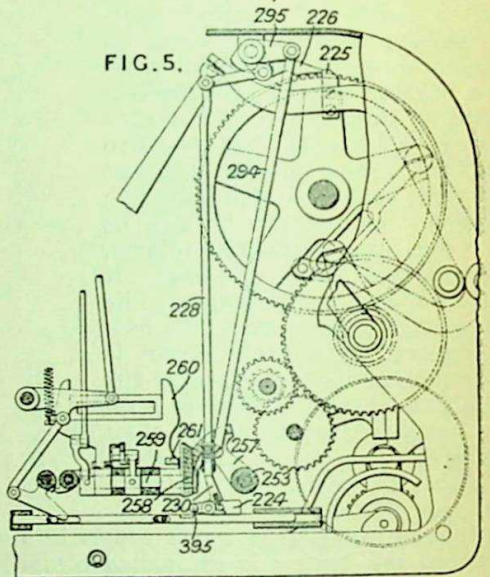


FIG. 5.



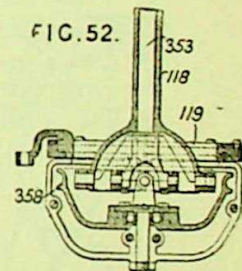
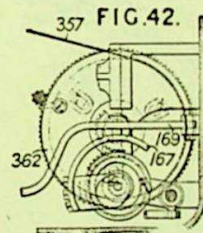
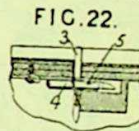
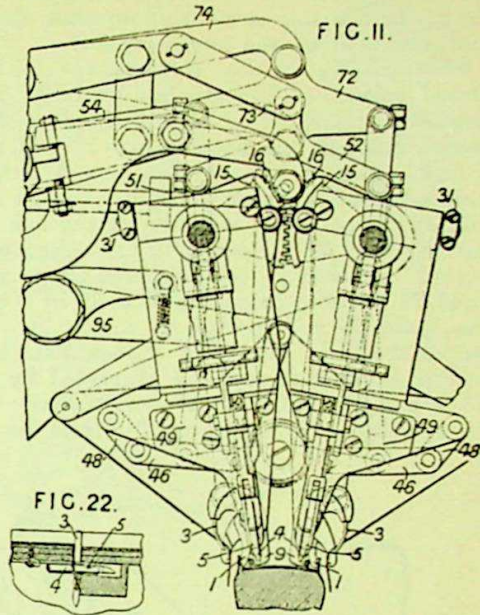
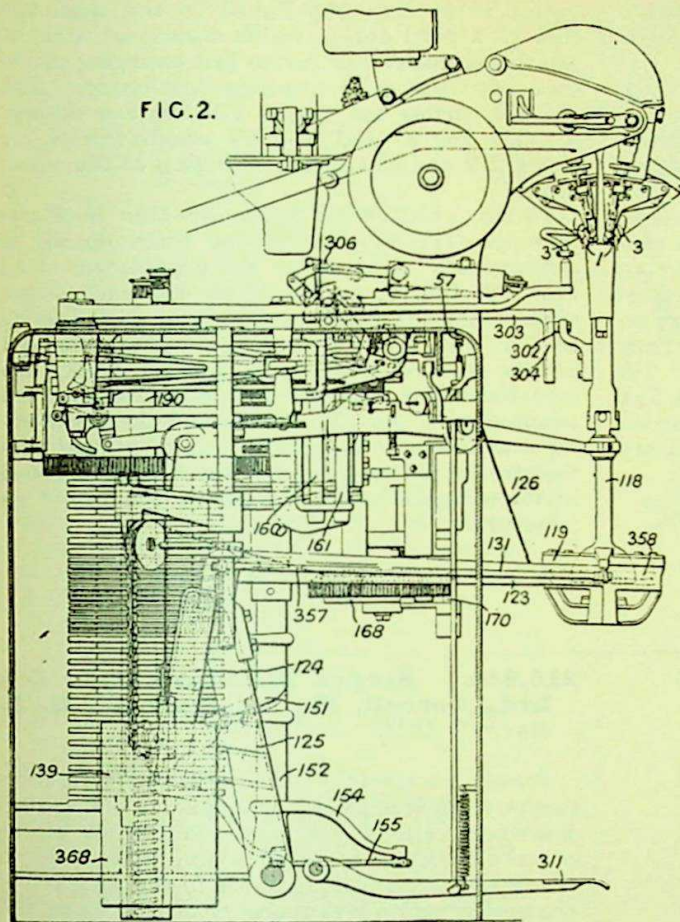
316, Fig. 6, which engages the rod 217 of the stop mechanism and depresses it till locked by the latch 220. The movement of the starting lever also causes the gauge-bar to be withdrawn to inoperative position, and locks the feeding mechanism in adjusted position. The depression of the rod 217 also causes a movement of the shaft 400 and disengagement by a dog 319, Fig. 9, of the locking latch 300 for the stitching and lasting supports.

The depression of the lever 265 by placing a shoe on the jack releases the catch 262 and frees the bar 264 from the plunger 274 thus allowing the movement of the jack bar to operative position and at the same time the locking latch 150 is released by a pin in the lever 260 to unlock the jack-feed mechanism.

The mechanism for unclamping the jack is actuated from the pattern cam by a flexible cord 357 which passes round a pulley 358 connected to the lower end of the spindle 353 by a gimbal joint. One end of the cord is connected to a grooved pulley 362 journaled on a stud and the cord passes thence over a guide pulley on the arm 123, round the pulley 358 and then to a

weight 368. During the operation of the last- ing mechanism the pulley 362 is rotated so as to wind up the cord and this rotates the pulley 358 and shaft 353 so as to move the lever 330 to the right and straighten the toggle 328, 329. The pulley 362 remains stationary while the jack is moved out of operative position and as the final movement is imparted to the pattern cam mechanism the pulley 362 is rotated backwards which unjacks the shoe. The mechanism for effecting the backward rotation comprises a latch 369 engageable by one of three pawls 370 on the gear 201. The latch is disengaged from a pawl 370 by the engagement of its arm 371 with the small gear-wheel 200 at the final movement of the pattern cam and the pulley 362 is allowed to turn one third of a revolution.

A dashpot mechanism is provided to retard the movement of the pulley 362 comprising a segmental piston 372 geared to the pulley and oscillating in a semicylindrical chamber filled with liquid. A passage through the piston is closed by a one-way ball valve 380 and a passage 381 is provided in the block 374 which fills the other half of the dashpot casing.

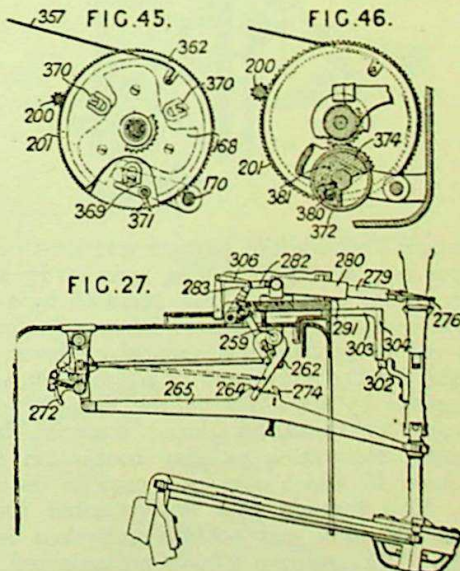


The cord 357 and weight 368 are also utilized to keep the actuating lever of the jack feed lever in contact with its cam and the fulcrum carrying lever at one limit of its adjustment and to effect this the cord is not attached direct to the weight but formed in part as a chain passing round a sprocket wheel 384 secured to the weight, the cord passing round guide-pulleys and pulleys 388, 389 on the lever 140 and being finally attached to the lever 132. A locking device, Fig. 50, is provided for locking the sprocket wheel against rotation during a portion of the downward movement of the weight, comprises a clutch-roll 391 co-operating with a spring-plunger 392 and adapted to bind against the hub of the wheel. While the cord is being wound up the clutch roll is free but on reaching its highest position the plunger contacts with a fixed stop and the roll is engaged with the hub, the sprocket wheel being prevented from rolling down the chain and causing a sudden return of the feed-lever 132.

For stopping the machine in case of fracture of the thread there is provided a bell crank 394, Fig. 3, the vertical arm of which extends in front of a pin 395, Fig. 5, projecting from the dog 230 through which the stop motion is thrown into operation. A rearward movement of the arm of the lever 394 moves the dog from engagement with the rod 228 and then moves the lever 224 to

stop the machine, the eccentric 231 not however being actuated to move the jack. The crank 394 is pivotally connected to a bar which lies in the region of the take-up levers and on the failure of tension is engaged by a take-up lever to stop the machine.

In a modified construction of the lasting

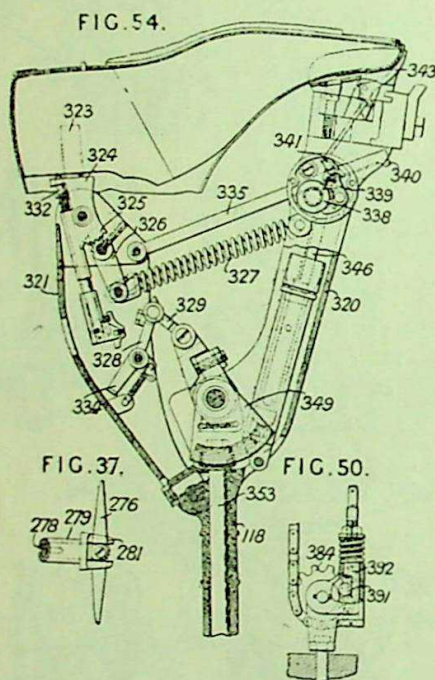


devices a wiper for pressing the upper against the rib of the sole is actuated by cam and lever connections from the needle-carrier.

Stitching by locking thread loops with free thread loops.—The stitches produced by the needles 3 are locked by loops of thread which are passed through the needle loops by the loopers 4 and detained by the detainers 5 until the needle-thread has been drawn-up. Each needle-carrier pivoted at 67 is oscillated through a connecting link 68 pivoted to a cross-head 69 connected, similarly to the cross-head 50, to a cross-head 72 actuated through a lever 73 by a cam on the shaft 28 and guided by a link 74. Each looper-needle is carried by a segmental bar 740 sliding in a guideway and connected by a link 77 to a segmental block 78 in a guideway carried by a plunger 79 so as to allow relative rotary

movement between the plunger and link. Each plunger is operated through a lever 80 by a rod 81 connected to a cross-head actuated by a cam on the shaft 28. Each loop-detainer is formed on a rod 87 sliding in a vertical guideway and engaged by the inner end of a lever 89 which is engaged by shoulders on the link 77. The take-ups for the main thread comprise levers actuated, through a yielding connection by a cam lever 97 which engages a cam on the shaft 28. The threads pass finally round tension wheels 106 to a wax pot 109 and then to the supply. The tension wheels are mounted on a stud 110 and a device is provided for releasing the tension at the close of an operation.

Threads, controlling otherwise than in stitch-forming.—The tension on the main threads is automatically released by the engagement of an arm 296, Fig. 9, on the shaft 400 with a cam surface on an arm 297 carried by a shaft bearing another arm 299 which bears against the end of the stud on which the tension wheels are mounted. The supports for the stretching and stitch-forming devices are locked in non-working position with the guides out of contact with the ribs of the boot sole by a catch 300 operated by the eccentric 231 and engaging the arm of the lever 22.

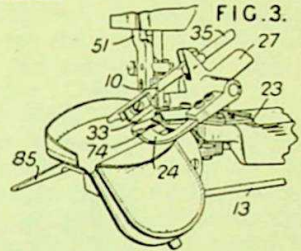
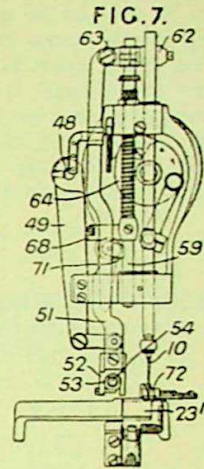
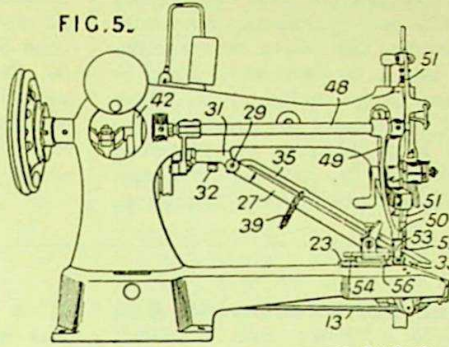
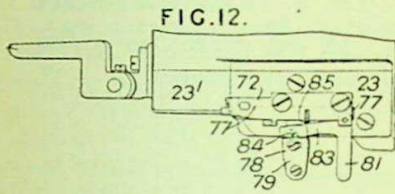


movement between the plunger and link. Each plunger is operated through a lever 80 by a rod 81 connected to a cross-head actuated by a cam on the shaft 28. Each loop-detainer is formed on a rod 87 sliding in a vertical guideway and engaged by the inner end of a lever 89 which is engaged by shoulders on the link 77. The take-ups for the main thread comprise levers actuated, through a yielding connection by a cam lever 97 which engages a cam on the shaft 28. The threads pass finally round tension wheels 106 to a wax pot 109 and then to the supply. The tension wheels are mounted on a stud 110 and a device is provided for releasing the tension at the close of an operation.

Thread-cutters.—The thread-severing mechanism comprises two blades 276 pivoted to the end of a rod 278 sliding in a sleeve 279 and having toothed segments meshing with rock-bars 281 extending from the sleeve. The rod 278 is actuated to approach the blades, which are long enough to sever both threads, by a link 282 con-

215,884. Singer Manufacturing Co., Ltd., Corral, E., and Stevens, E. A.
March 5, 1923.

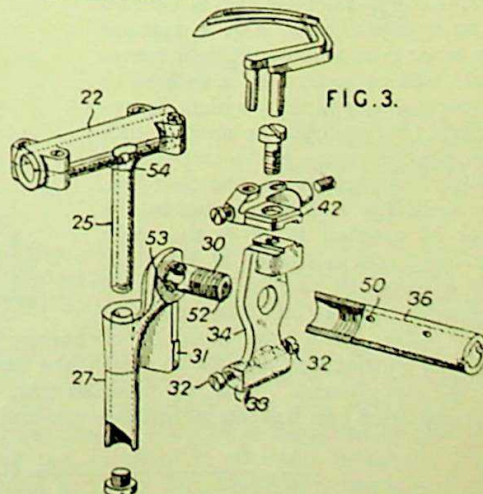
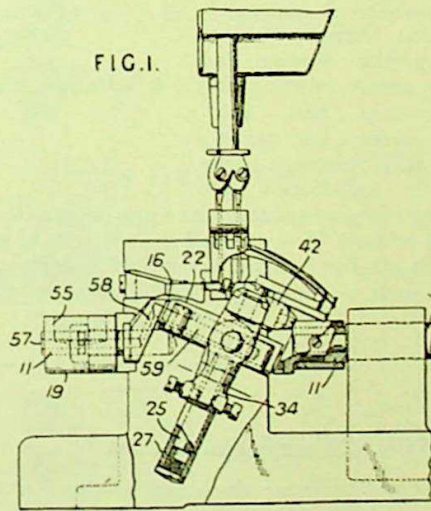
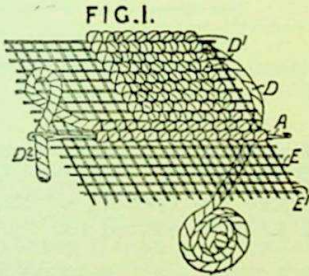
Sewing-machines; feed by presser-foot; work-supports; work-guides; needle-guides.—A sewing-machine which is specially adapted for sewing purses comprises a throat plate, part of which is inclined at an oblique angle to the direction of the needle, and a feed member carried by an arm pivotally mounted and inclined at the same angle as the throat plate. An eye-pointed needle 10 co-operates with a shuttle oscillated by a pitman 13 connected by linkage to the main shaft. The needle enters a slot in the inclined part 23¹ of a throat-plate a horizontal part 23 of which is secured to the work-arm. A feeding-foot 24 is mounted above the plate 23¹ on an arm 27 pivoted at 29 to a bracket 31 rotatable about a vertical stud 32. A guide 33 located above the feed-foot is carried by an arm 35 also pivoted at 29 and pressed towards the arm 27 by a spring 39. Feeding movements are given to the arm 27 by mechanism comprising a face cam 42 on the main shaft acting through levers to rock a shaft 48 and arm 49 which is connected by a link 50 to a lever 51. A block 52 on the lever 51 has detachable engagement with a ball 53 on a rod 54 clamped by a screw in a socket 56 on the feed-lever. The lever 51 is pivoted at 63 to a cross-head 62 carried by a spring-depressed bar 59. A rod depending from the cross-head engages a cam 64 on the main shaft, which thus communicates lifting movements to the lever 51. The bar 59 carries a bracket 68 which is engaged by a hand-operated cam 71 to raise the lever 51 and the feed-foot. A stationary needle guard 72 is secured to the horizontal portion 23 of the throat-plate and forms in conjunction with the bevelled end 74 of the feeding foot a grinding means for the work. An edge-guide 77 sliding between the guard 72 and the throat-plate is provided with a lateral arm 78 to which is pivoted an arm 79. The guide



77 is retractable from operative position to allow the tab of a purse to pass under the guard 72 by pinching together the arm 78 and a spring-influenced catch-lever 81 having a notched arm 83 which engages a pin 84 on the arm 79. An extension 85 of the throat-plate is held by a spring against the forward edge of the part 23', but may be swung aside. In operation the feeding foot is raised and shifted for a fresh feeding operation while the needle is in the work.

215,914. **Kelly, M. M.** April 5, 1923.

Crochet and like hooks; bodkins. — A hand-made rug or the like is made by pulling loops D^1 formed from a continuous piece of wool D through holes E^1 in rug canvas E and drawing through a row of loops so formed a piece of similar wool, yarn or other binder D^2 to lock them in place and prevent them from being pulled back. A needle A is employed having at one end a hook to pull the loops through the canvas and at the other end an eye through which the locking material is threaded when it is to be drawn through the loops. The free ends of the locking material are passed through to the back of the canvas. Fancy work suitable for cosies, cushions &c. may be produced by the same method on fine canvas with small needles and silk or other fine yarn.



216,778. **Fairweather, W.,** (Singer Manufacturing Co.). Oct. 24, 1923.

Chain-stitching.—In a looper mechanism of the type described in Specification 7903/14, a looper clamp 42 is mounted for lateral adjustment on a looper carrier 34, Fig. 3, which is in turn mounted for angular adjustment on a pin 30 on the looper carrier support 27. The support 27 is slidingly connected to the arm 25 of the split

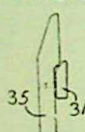
sleeve 22 of the inclined crank 16, Fig. 1, and carries a web 31 adjustably engaged by screws 32

in lugs 33 on the carrier 34. A tube 36 screwed on to the pin 30 is slidingly journaled in a bushing in the frame to control the looper movements. The crank shaft 11, Fig. 1, is detachably fixed to the under-shaft 9 and is journaled at its other end in a bearing 19 detachably mounted on the frame so that the shaft 11 may be removed without affecting the shaft 9. All the pins and shafts are made hollow to facilitate lubrication,

the ends being closed by screw-caps or plates. An oil reservoir communicates with the journal of the tube 36, from which the oil passes by passages 50, 52 - - 54, Fig. 3, to the crank-journal. A second reservoir 55, Fig. 1, in the bearing 19, communicates with the bearing of the shaft 11, whence the oil passes by passages 57 - - 59 to the crank-journal.

216,891. Singer Manufacturing Co.,
(Assignees of Fifield, A. F.). Feb. 20, 1923,
[Convention date].

FIG. 4



Sewing - machines; threads, controlling otherwise than in stitch forming.—A machine suitable for producing groups of stitches has a manually-operated element for releasing the tension and subsequently opening the work-clamp and automatic means for moving the said element sufficiently to release the tension without opening the work-clamp. A clamp-lifting rod 21 is controlled by a lever 25 having an arm 27 for manual actuation and an arm 28 for automatic actuation by the cam 29. A cam

FIG. 2

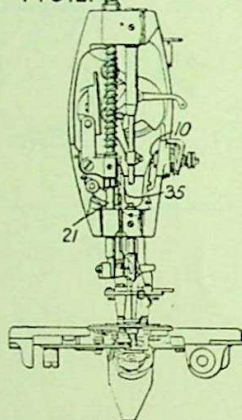
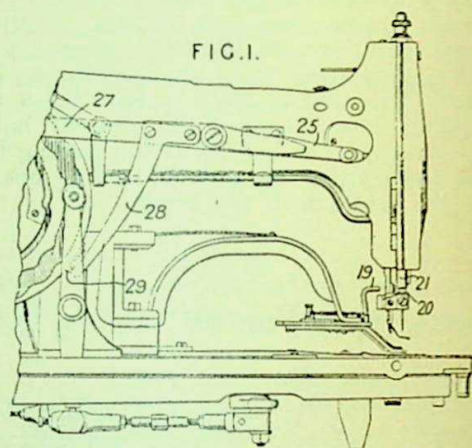


FIG. 1



31 on the rod 21 engages a lever 35 which actuates a tension-release pin 10 when the rod is lifted, sufficient lost motion being allowed be-

tween a part 19 of the clamp and a lifting bracket 20 on the rod to ensure the release of the tension before the opening of the clamp. Specification 211,855 is referred to.

216,904. Thompson, W. P., (Union Special Machine Co.). Dec. 6, 1922.

Sewing-machines; duplex feed by dogs.—The main feed-dog is carried by an upright bar 5, Fig. 1, pivoted to a lever 8 to receive vertical movements and connected by a link 13 to an eccentric rod 10 which is restrained by an oblique anchor link 11 so as to cause it to impart to-and-fro movements to the feed-bar. The auxiliary feed-dog is carried by a bar 15 pivoted at 16 to the main feed-bar 5 and is slotted at 18 to engage a block 19 carried by a pin 20 adjustably fixed in the machine frame. The main feed is varied by means of a normally stationary part 12 to which the anchor link 11 is pivoted. In a modification, the auxiliary feed-bar has an adjustable pin-and-slot

FIG. 1

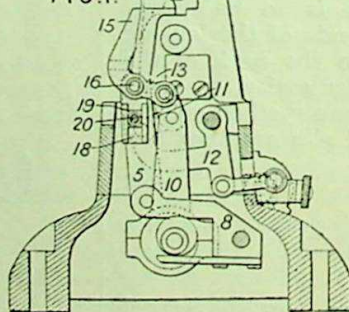
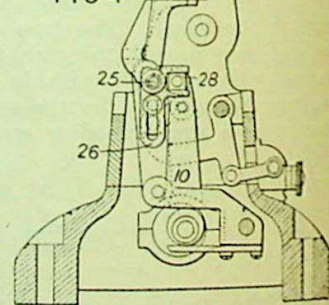


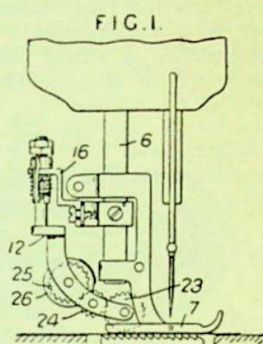
FIG. 4



connection with a lever 26, Fig. 4, pivoted at 25 to the machine frame. A second arm of the lever 26 has a sliding-rocking connection 28 with the lever 10.

217,030. **Entriken, E. W.** May 24, 1923.

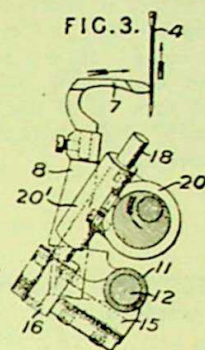
Sewing - machines; counting - mechanism, application of.—A device for measuring the length of seam stitched is resiliently mounted on the presser-bar and comprises a train of gear-wheels 23 - - 25 driving a counter 26 which registers the distance traversed by the wheel 23 on the surface of the work. The wheels and counter are mounted on a frame 12 having a resilient sliding connection with a bracket 16 mounted on the presser-bar 6. The wheel 23 is accommodated between the sections of a divided presser-foot 7.



217,156. **Fairweather, W.,** (Singer Manufacturing Co.). Feb. 6, 1924.

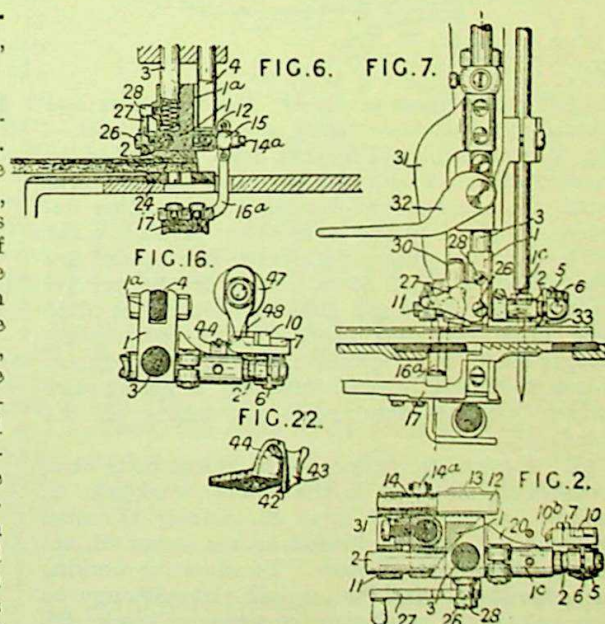
Chain - stitching. — In looper - actuating mechanism of the kind described in Specification 339/14, in which a looper carrier 8 is given endwise and sidewise movements by an oblique pin-and-sleeve connection 18, 20¹ with an eccentric-strap 20, adjustments are provided to correct inaccuracies of manufacture to set the relative position of the needle 4 and the looper 7, and to adjust the side-throw of the looper.

The looper-carrier support 11 freely mounted on the shaft 12 is bored to receive a pin 15 on a block 16 which carries the pin 18. Thus the pin 18 may be adjusted about the axes 15, 12 to align accurately with the sleeve 20¹. By moving the pin 15 endwise in the support 12, the relative positions of the needle and the looper are set adjusted. To allow of adjusting the side-throw, the sleeve 20¹ may be separate from the strap 20 and be adjustably fixed thereto by pin-and-slot connections.



217,263. **Union-Special-Maschinen-fabrik Ges., and Maier, K.** Jan. 31, 1923.

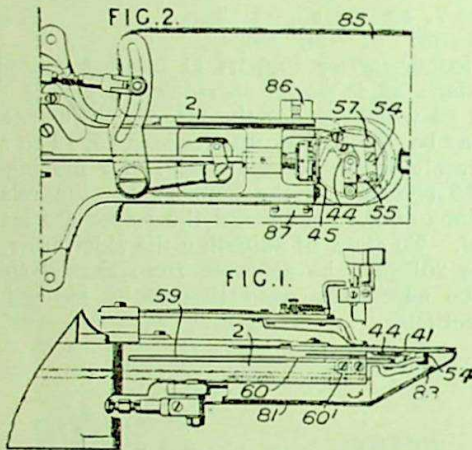
Sewing-machines; channelling and channel-closing devices; presser-feet; feed; needle-guides.—Sewing-machines for work on leather and like material in which the sewing-thread is embedded, are provided with an adjustable knife which cuts the work in front of the needle along the line of feed to produce an incision parallel to the surface of the work. The presser-foot 24, Fig. 6, has an upright stud 30, Fig. 7, which is connected to the presser-bar 3 by a member 31. A member 1, Fig. 6, is yieldingly mounted on the end of the presser-bar 3 so as to be pressed on to the presser-foot 24. A U-shaped arm 1^a on the member 1 encircles a guide-rod 4 to prevent lateral movement of the member. Slidably mounted in the member 1 is a rod 2, a head 5 on which adjustably receives the stud 6 of a knife holder 7 which carries a vertically-adjustable knife 10. Fixed to the opposite end of the rod 2 is a collar 11, an arm of which carries an axle 12, Fig. 2, which is embraced by a U-shaped arm 13 of the member 1 to prevent rotation of the rod 2. A sleeve 14, 1 to prevent rotation of the rod 2. A sleeve 14, 1 rotatably journaled on the axle 12, but held from axial displacement thereon has a stud 14^a on which is slidably mounted a ball 15. A rod 16^a universally jointed to the ball 15 is fixed to the feed bar 17, so that the lateral movements of the feed bar are communicated to the rod 2, while allowing the member 1 to partake of the vertical movements of the presser-foot. During the feed-strokes, the presser is raised and the knife acts as an auxiliary feed-member. During the return movement to the right, Figs. 2 and 7, the knife



slits the work. The knife 10 has a horizontal cutting portion 10^b which extends in front of the vertical lip-raising portion in the direction of cutting. A device 33, Fig. 7, fixed to the knife-carrier, presses the work down in front of the knife during cutting to ensure uniform depth of incision. An interchangeable and adjustable channel closing strip 20 is mounted on the sleeve 1^c of the member 1. A cam lever 27, Fig. 7, pivoted at 26 to the presser-foot engages a pin 28 on the member 1 so that the cutting apparatus can be raised bodily during sewing. If the

presser-foot is raised by the usual hand lever 32, the cutting apparatus is also raised to release the work. In a modification for use on hard or dry leather, a member 44, Fig. 22, is fixed to the presser foot, a tongue 42 thereon engaging in the work-slit while a groove 43 acts as a needle-guide. An edge-guide roller 47 adjustably mounted on an arm 48 of the knife-holder 7 moves with the knife and prevents the work yielding during cutting.

217,506. Fairweather, W., (Singer Manufacturing Co.). Nov. 27, 1923.



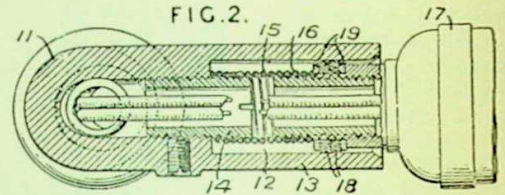
Button-attaching machines; thread-cutters and thread-end holders; starting and stopping gear.—In a sewing-machine of the kind described in Specification 206,710, but having a narrow work-arm, the usual thread-detaining and cutting devices, mounted on the lever 44 are pivoted to the underside of a removable throat-plate 41 and are connected by a link 55 to a lever 54 also pivoted to the throat-plate and detachably linked at 57 to the usual operating-means. The co-operating ledger-blade is adjustably fixed to the throat-plate to which is also attached a spring-plate which prevents the needle-loop falling off the blade 45.

Work-supports; frames.—The throat-plate 41 is removably mounted in the hollow work-arm 2, which has a curved cover 81 slidably mounted thereon. A cap 83 hinged to the cover 81 encloses the cutting devices. To adapt for working as a flat-bed machine, a cloth-plate 85 may be secured to the work-arm by means of blocks 86, 87. The draw-bar 59 of the cutter-operating means reciprocates in a groove 60 in the arm 2, but is held from protruding therefrom by a plate 60', Fig. 1.

217,509. Fairweather, W., (Singer Manufacturing Co.). Dec. 11, 1923.

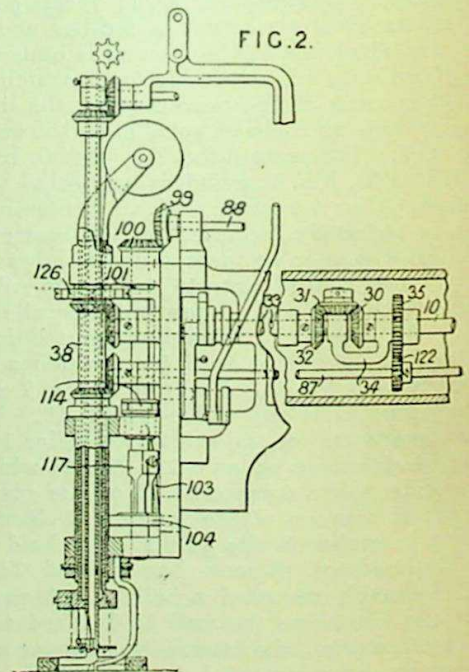
Sewing-machines; illuminating-apparatus.—In means for mounting electric lamps on sewing

machines, an anti-vibration device is provided comprising a spring 15 connecting a support 11, adapted for attachment to the gooseneck of the sewing-machine, and a horizontally-disposed lamp-holder 17. a second connection of cushioning material 18 being provided between the support and the lamp-holder for maintaining the latter in a substantially horizontal position whilst permitting a slight rocking movement thereof sufficient to absorb vibration. The support 11 is



in the form of an elbow, one arm of which engages a screwed socket provided on the gooseneck of the machine; the other arm comprises a sleeve 13 surrounding a screwed nipple 14 on to which the spring 15 is threaded, the other end of the spring being threaded on to a nipple 16 carrying the lamp-holder 12. The second connection between the support and lamp-holder comprises felt or like cushioning washers 18 disposed between smaller metal washers 19. Specifications 183,733, 187,193 and 187,785 are referred to.

217,533. Groebli, J. A. Feb. 6, 1923.

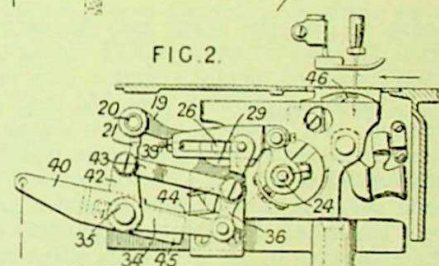
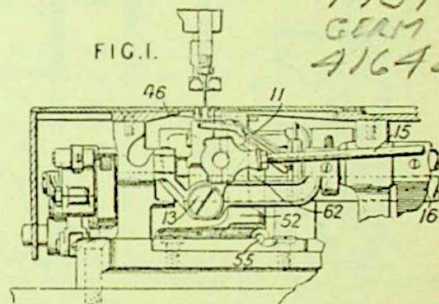
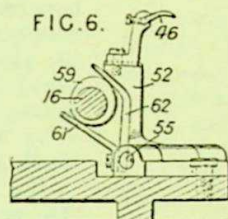
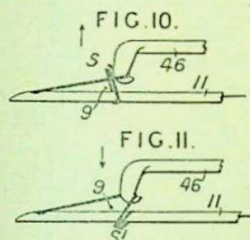


Universal-feed sewing-machines; threads, attaching.—In a bead-attaching machine of the type described in Specification 214,752, means are provided for advancing or retarding the rotation of

the stitching thread carrier and for turning the needle to accord with changes in the direction of the feed of the work. The driving shaft 10 drives the rotary looper-tube 38 through gearing 30-32 and a shaft 33. The gear 31 is journaled on a yoke 34 with a spur-wheel 35, gearing with a pinion 122 on a shaft 87 of the feed-directing mechanism. The needle-carrying tube below the work support is also geared to the lower shaft of the feed-directing mechanism. When the direction of feed is changed, the yoke 34 is rotated about the shaft 10, 33 and the movement of the thread carrier suitably advanced or retarded. A feed-bar is pivoted to a sleeve 126 loosely mounted

on the tube 38 and lifted periodically by a cam for the return stroke of the feed-bar. The feed-bar has an extension 104 in which is rotatably mounted a slotted disc, embracing the squared lower part of a block 117 fixed to a shaft 101. The feed-bar is moved in the direction of the slot by a lever 103 pivoted on the block 117 and actuated by a cam surface upon an axially reciprocating collar 114. The shaft 101 is turned to vary the direction of the feed by usual connection 100, 99, 88 with the feed-directing hand-lever. The collar 114 is actuated by an arm of a cam-operated slider.

217,821. **Armstrong, J. J. V.**, (Union Special Machine Co.). Oct. 15, 1923.



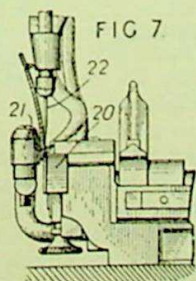
Loop-stitching.—In a double-loop sewing-machine having reversible feed a loop-positioning finger is provided to hold the looper-thread for the passage of the needle. A threaded looper 11 pivoted at 13 is oscillated by a link 15 and is given the usual needle-avoiding movements. A hooked-finger 46 is adjustably fixed in a carrier 52 which is pivoted diagonally to the looper on a spindle 55, Fig. 6. Arms 61, 62, pivoted at right angles to the under-shaft 16 on the support 52, embrace a cam 59 on the shaft 16. Fig. 10 shows the position of the stitch-forming devices when the needle 9 is descending, the feed being normal; the previous stitch *s* is so placed that the finger 46 is really unnecessary. Fig. 11 shows a similar portion with the feed reversed, the previous stitch being shown at *s'*; the necessity for the finger 46 is clearly shown here.

Feed by dogs.—A feed-bar 19, Fig. 2, is pivoted on a spindle 20 journaled in an arm 21 which is fixed to a rocker-shaft 35. The bar 19 is given its vertical movements by an eccentric on the shaft 16. A slotted arm 29 pivoted on a fixed shaft 26 is connected at one end to a crank 24 on the shaft 16. A link 36, one end of which is

connected to an arm 34 on the shaft 35, is slidingly connected at the other end to the arm 29. A link 43 connects the link 36 to a treadle-actuated bell-crank lever 42, 40 which is loosely mounted on the shaft 35. A spring 44 acts on an extension 45 of the lever 40, 42 so as to hold the link 36 normally at the right-hand end of the arm 29. When the link 36 is shifted from one side to the other of the pivot 26 the direction of feed is reversed. An adjustable stop 39 is provided for varying the length of stitch when reversed.

217,836. **Boivin, O.** Nov. 5, 1923.

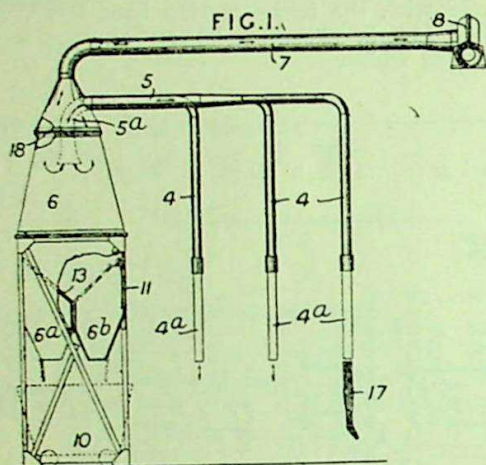
Boot-sole sewing-machines.—An insole rib which has been formed in a press is rendered permanent in a sewing-machine comprising a guide roller 21 cooperating with the table 20 to support the insole while the rib is stitched by the needle 22.



217,980. **Collins, J. N., and Collins, W. P.** March 24, 1923.

Turning articles inside out.—The article such as a sock or stocking is held in juxtaposition to the inlet of a downwardly extending tube in which an air current is induced, the air current effecting a reversal of the article without the necessity of a drawing-on or drawing-down operation. As shown, tubes 4 having glass extensions 4^a lead to a conduit 5 of progressively increasing diameter, the end 5^a of the conduit passing into an airtight chamber 6 connected by a conduit 7 to

a suction fan 8. In operation, a stocking 17 is held at the bottom of the glass extension 4^a of a tube, the induced air causing it to be turned inside out under observation of the operative. Upon release of the stocking, it is drawn through the pipe 4 and conduit 5 to the chamber 6 and falls into one or other of compartments 6^a, 6^b as determined by the position of a hinged flap 13. The compartments 6^a, 6^b are provided with discharge



doors so that the goods may be delivered to a truck 10. A perforated grid 18 prevents the goods from being accidentally drawn into the conduit 7. The chamber 6 is provided with inspection windows 11. One of the Provisional Specifications describes an arrangement in which the goods are turned inside out by being sucked into tubes each provided with a damper and a grid to prevent the article from being completely drawn into the tube, and in which the operative retains hold of the article while it is being turned inside out

and withdraws it from the tube against the upward movement of the air.

218,171. Gracey, S., and Spence, Bryson, & Co., Ltd. Oct. 20, 1923.

Hem-stitching machines of the kind producing "shire" stitching are provided with piercers 2, 3 carried by a bar 1 actuated from the needle-bar 9 by means of a horizontally slotted member 6 clamped on the piercer-bar and engaged by a pin 7 projecting from the block 8 by which the driving-link 5 is connected to the needle-bar. For the purpose of sewing very narrow hems the feed-plate 14 is formed with a narrow portion 13 working in the usual narrow groove provided on the underside of a presser-foot used for narrow seams.

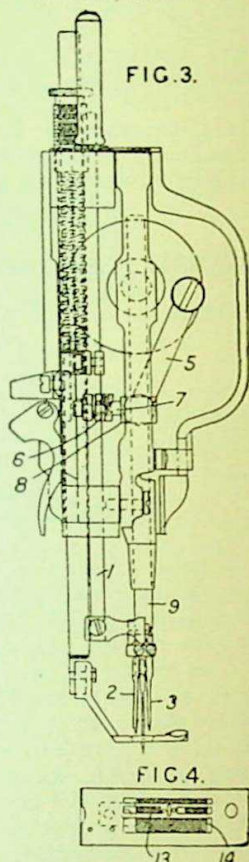
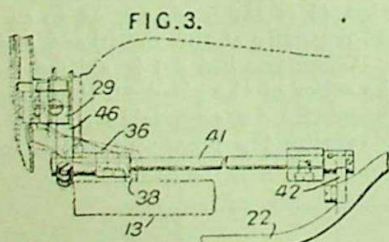
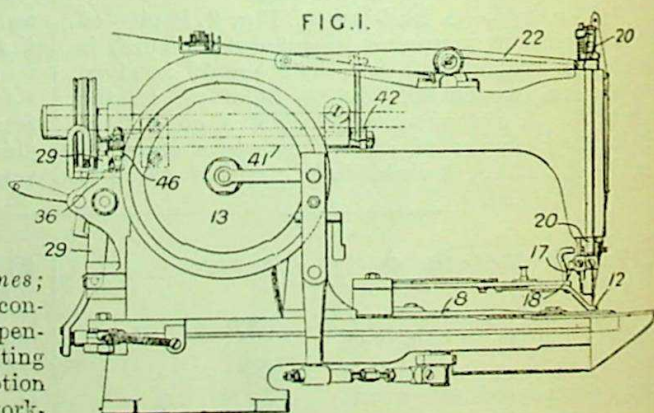


FIG. 4.

218,207. Fairweather, W., (Singer Manufacturing Co.). Jan. 9, 1924.



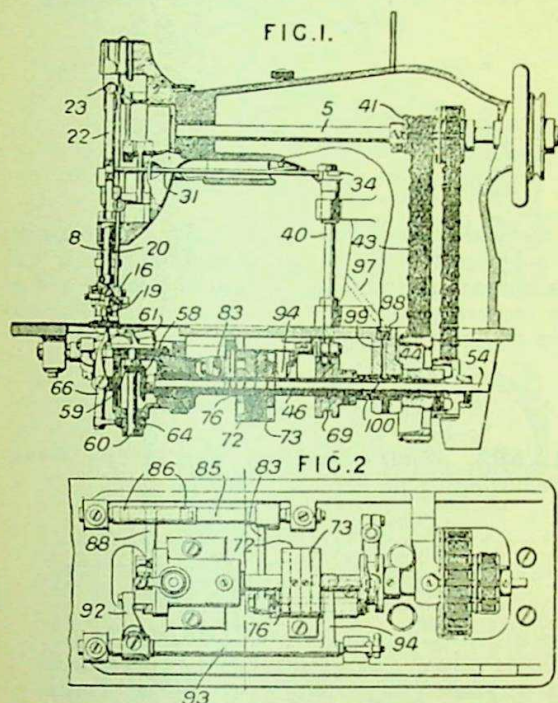
Button-attaching machines; sewing-machines; starting and stopping gear.—A stop-arm connected to a manually-operable work-clamp opening lever is arranged to prevent the starting movement of a manually-operable stop-motion lever when the work-clamp is open. The work-clamp of a flat-button attaching machine comprises the usual sliding bar 8 carrying the spring-pressed clamp 12, which carries an arm 17 adapted to be raised by a lug 18 on the lifter-bar 20. The lifter-bar 22 is linked to an arm 42 of a rock-shaft 41, the outer end of which carries a stop-arm 46, closely adjacent the usual stop-motion control lever 29. When the machine is running, the



parts are in the position shown in Fig. 3, opening of the work-clamp being prevented by the relative positions of the parts 29, 46. When the usual catch-lever 36 is tripped by the lug 38 on the clamp-shifting cam-wheel 13, the lever 29 is spring-pressed into stopping position, leaving a free path for the rocking of the stop-arm 46 when

the clamp is being opened. When the clamp is open, the arm 46 prevents the movement of the lever 29 to starting position. Specification 203,359 is referred to.

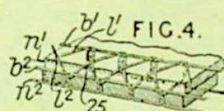
218,217. Fairweather, W., (Singer Manufacturing Co.). Jan. 23, 1924.



Hem-stitching machines; needles, vibrating laterally; needle guides; feed by dogs; upper and lower shafts, connecting.—In a hem-stitch sewing-machine, jogging movements are communicated to the needle and the feed mechanism and loop-taker mechanism are actuated from concentric shafts situated below the work-plate. The needle-bar 8 carries a bracket on which are mounted piercers and a pivoted bracket 16 carrying the needle 19. The bracket 16 is oscillated by a rod 20 secured thereto and passing through a slot in an arm 22 pivoted at 23 and connected by a ball-and-socket joint to a rod 31 pivotally connected to a crank 34 projecting from an oscillating shaft 40 which is actuated by a cam 69 mounted on a shaft 46. The shaft 46 is driven from the main shaft 5 by one to three belt gearing 41, 43, 44 and surrounds a shaft 54 driven from the shaft 5 by one to one gearing. The shaft 54 drives, through a two to one bevel gear 58, 59, a shaft 60 carrying a loop-taker 61 and thread-spool. An eccentric 64 on the shaft 60 actuates a needle-guard 66. The shaft 46 in addition to actuating the needle-jogging device drives the feed mechanism through cams 72, 73. The cam 72 oscillates a lever 76 having a feed-adjusting slot therein for the connection of a link 83 which oscillates a shaft 85. A crank 86 on the shaft carries a feed-dog support 88. The cam 73 cuts

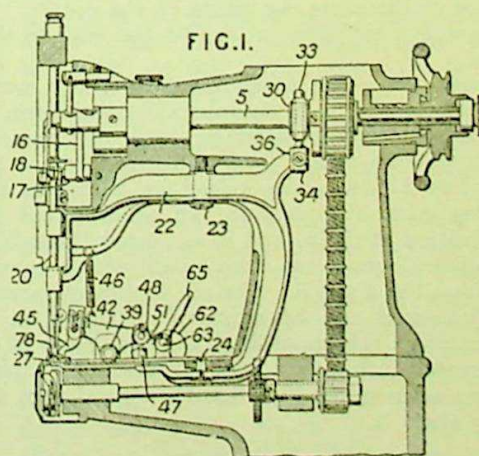
through a lever 94 to oscillate a shaft 93 having an arm 92 which enters a slot in the member 88 and effects the vertical movement thereof. The concentric shafts are lubricated through passages 97 - 100 in the frame and the bushing of the shafts.

218,545. Dicker, S. G. S., (Lock-Edge Machine Corporation). Nov. 5, 1923.



Stitches and seams.—The fingers of gloves are closed by flat seams 15, 17, 18 comprising twin rows of lock stitching b^1, n^1 and b^2, n^2 , Fig. 4, and one or more cover threads l^1, l^2 held in place thereby. The seams may be formed on a post type machine, the cover threads being laid on the seam by simultaneously operating loopers, these threads crossing each other between the lock stitch seams and being locked in position by the latter. The row of stitching b^2, n^2 is positioned adjacent to the raw edge 25 of the outer lap of material, and may pass through it.

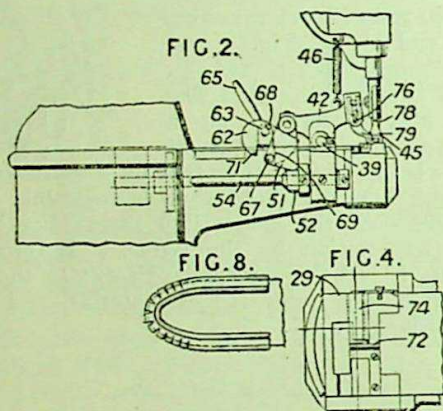
218,936. Fairweather, W. C., (Singer Manufacturing Co.). Jan. 23, 1924.



Sewing-machines; trimming or cutting.—A lever 42 to which is adjustably fixed an edge-snipping cutter 45, is pivoted at 39 and has pivoted thereto an arm 51 which engages with an eccentric 52 on a shaft 54 under the influence of a spring 46. The shaft 54 actuates the cutter once during each two stitches. A manually-actuated rock shaft 63 carries a gapped cam-plate 62.

To disengage the cutter from its actuating-mechanism, the handle 65, Fig. 2, is turned to the right when the surface 69 of the plate 62 engages a pin 67 on the arm 51 and disengages the latter from the cam 52, the spring 46 now holding the cutter in inoperative position. To start the cutter, the handle 65 is turned to the left when the plate 62 engages the hub 48 on the lever 42 and raises it to allow the arm 51 to swing into operative position assisted by the interaction of the surface 71 of the plate and the pin 67. Stops 47, 68 on the frame and the plate 62 respectively limit the movements of the lever 42 and the arm 51 to inoperative position. This construction is particularly useful for snipping the edges of the work when sewing round sharp curves while French-cording boot-uppers and the like, as shown in Fig. 8. The cutter 45 is also adjustable laterally of its cutting edge by means of a set-screw 76.

Work-supports.—The cutter 45 coacts with a



ledger-block 72 on the throat-plate 29, Fig. 4, and is held yielding thereagainst by a spring-pressed follower 74, the edge of which is slightly bevelled to facilitate the entry of the cutter. A work-guide is supplied for leading the work to the needle.

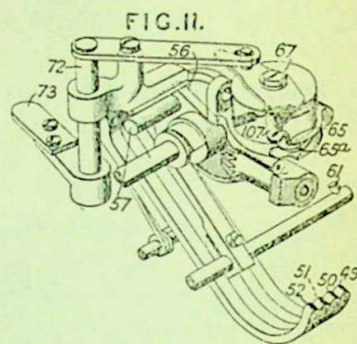
Presser-feet.—The presser-foot 79 is cut away as shown in Fig. 2 to accommodate the work.

Needles, vibrating laterally; feed by dogs co-operating with other feeds.—A feed-frame 22 pivoted at 23, 24 carries a feed-dog 27 which co-operates with a feeding-dog 78 as described in Specification 2411/11, and is oscillated through a pin-and-slot connection from an adjustable eccentric 30 on the shaft 5. The pin 33 has an eccentrically-formed end 34 adjustably clamped in a bearing 36 on the frame 22. The needle-bar 20 is reciprocated in bearings in the frame 22 by a pin-and-slot connection 17, 18 with a crank-arm 16 on the shaft 5.

219,313. Larkin, W. July 19, 1923, [Convention date].

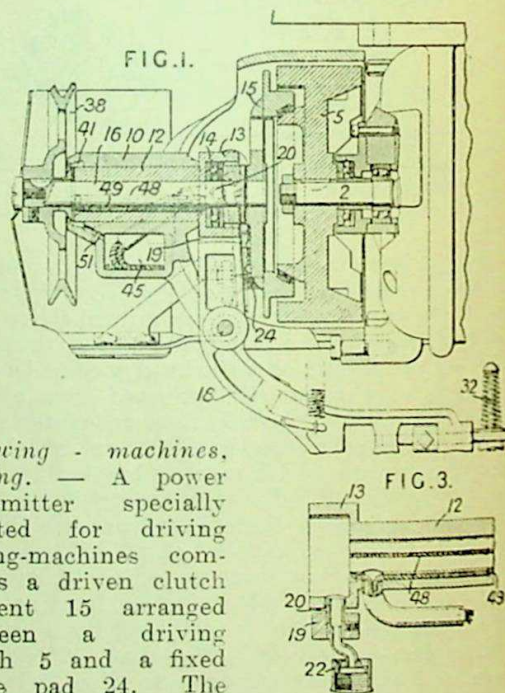
Knot-tying devices.—In a knitting machine supplied with a continuous length of yarn of different colours, the knotting, clamping and cut-

ting blades 65, 65^a, &c. are actuated by arms on a spindle 72 normally raised by the yarn selector 56 to keep the arm 73 out of the path of its operating-cam on the needle cam-ring. The ends



of the yarns not fed are frictionally held between a roughened surface on the guide-plate and the serrated edge of an arm on the lower end of the knotter spindle 67. The mechanism also has yarn-gripping fingers 107.

219,582. Fairweather, W., (*Singer Manufacturing Co.*). Dec. 27, 1923.



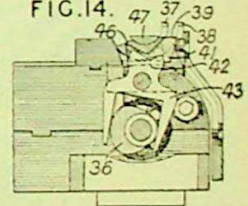
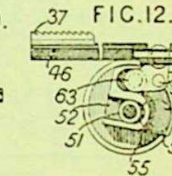
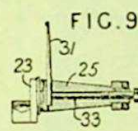
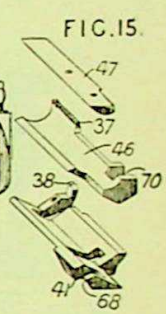
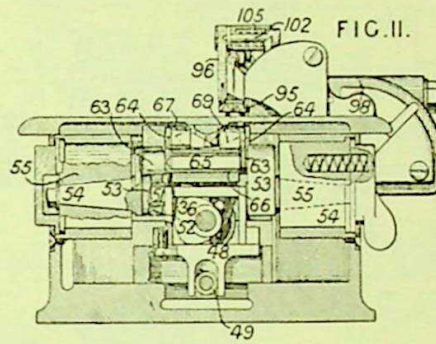
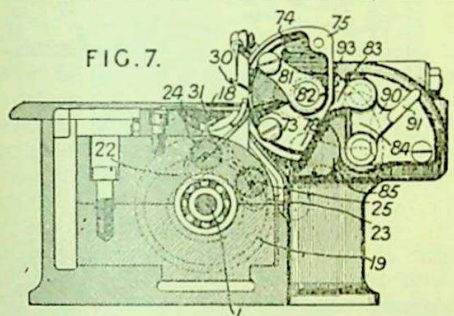
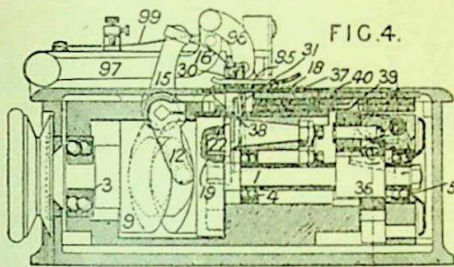
Sewing - machines.

driving. — A power transmitter specially adapted for driving sewing-machines comprises a driven clutch element 15 arranged between a driving clutch 5 and a fixed brake pad 24. The element 15 and a transmitting-pulley 38 are both secured to a shaft 16, which is supported in a non-rotary sleeve 12, which slides and carries the shaft with it to drive and brake the driven group of elements. The sleeve 12 is in turn supported in a frame member 10 so that the shaft 16 is in line with a power shaft 2. The sleeve 12 is opened out to form a cup 13 for a thrust bearing 14 against the clutch member 15. The sleeve 12 is kept from rotating and moved longitudinally by means of a

pin 20, Fig. 3, which makes connection with the upper arm 19 of a spring-pulled lever 18 controlled by the operator through a rod 32. The bearing 14 is lubricated through the pin 20 by a grease-cup 22. To prevent oil being thrown upon garments being sewn, an oil chamber 45 is pro-

vided in the thickness of the fixed support 10. A cord or wick 49 extends from the chamber 45 to both ends of an open groove 48 in the wall of the bearing sleeve 12, as shown in Fig. 3. An annular groove 41, Fig. 1, and duct 51 return surplus oil to the chamber 45.

219,587. **Avis, S. W.** Jan. 8, 1924.



Loop-stitching; needles, driving.—In a sewing-machine for overseaming a needle oscillating thread loopers and reciprocating feed-dogs are all operated by cams mounted on a single rotary shaft parallel to the direction of feed and arranged below the work-plate. The shaft 1, mounted on bearings 3, 4, 5, carries a cam 9 which oscillates a lever 12 secured to one end of a long tapering arbor on the further end of which is mounted a needle carrier 15 bearing a curved needle 16. The loopers 30, 31 operate transversely to the line of feed one above and one below the surface of the work-plate 18, and are actuated by a cam-groove 19 in the cam 9 which engages rollers on rocker-arms 22, 23 mounted on the tapering shafts 24, 25 which carry the loopers. The loopers are secured in radial slots in these shafts by axial clamps 33.

Feed by dogs; duplex feed.—A front feed-dog 37 and rear feed-dog 38 are given lifting and feed movements from a single cam 36. The feed-dog 38 is secured to a carrier 39 having a cylindrical under-surface fitting in a fixed block 40. A pair of lugs 41, Fig. 14, project downwardly from the carrier and are engaged by a tooth 42 projecting from a forked lever 43 embracing the cam 36. A rocking movement is thus given to the carrier and a rising and falling movement to the dog. The dog 37 is attached to a carrier 46 having an angular lower surface fitting in a corresponding recess in the carrier 39, and is held in position by a fixed plate 47 having a cylindrical surface resting on the upper surface of the carrier 46. The feed dogs are oscillated together by this

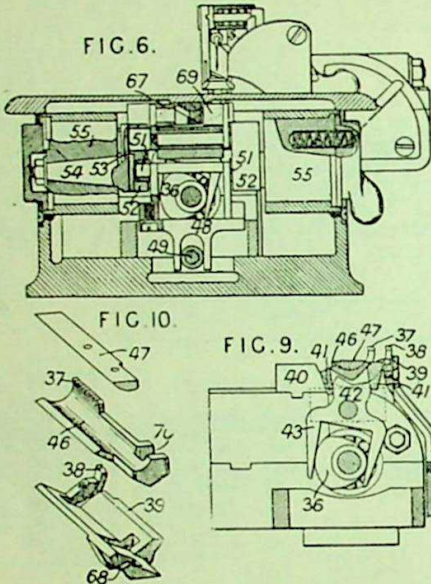
arrangement. Separate variable feed-motions of the dogs are effected by mechanism comprising a yoke 48, Fig. 11, embracing the cam 36 and guided by a roller 49. Rollers 51 carried on each side of the yoke engages radial slots 52 in adjustable bell-crank plates 53 mounted on tapering arbors 54 seated eccentrically in cylinders 55 rotatable within openings in the casing. Curved slots 62 in the plates 53 receive rollers 63 mounted on bell-crank levers 64 which have concentric arbors 65, 66 and carry rollers 67, 69 engaging slots 68, 70 in the dog-carriers 39, 46 respectively. By rotating the cylinders 55 the relative positions of the rollers 51 and the pivots of the plates 53 are varied and the throw of the feed-dogs independently adjusted.

Trimming.—A fixed blade 73 and movable blade 74 are supported in a housing 75 which may be adjusted to vary the width of trimming or swing away from the stitch-forming implements. The housing is attached to a sleeve supported in a yoke-shaped frame mounted on an arbor 78. A projection 93 on the housing is pivoted to a link 90 pivoted on the frame and provided with a finger-piece 91 by which the adjustment is effected. The movable blade is secured to an arm 81 projecting from a shaft 82 from which also projects an arm 83 connected by a link 84 to a bell-crank lever 85 mounted on the arbor 78 and rocked by an eccentric driven by the shaft 1.

Presser-bars.—A presser-foot 95 is pivotally mounted on a bar 96 depending from an arm 97 pivoted to the wall of a cover 98 and pressed by a spring 99. The bar 96 is pivoted to the arm 97 but is normally locked thereto by a dog 102

held in a notch in the arm 96 by a spring 105. On withdrawing the dog from the notch the arm 96 may be turned up out of the way. Specifications 219,588 and 219,589 are referred to.

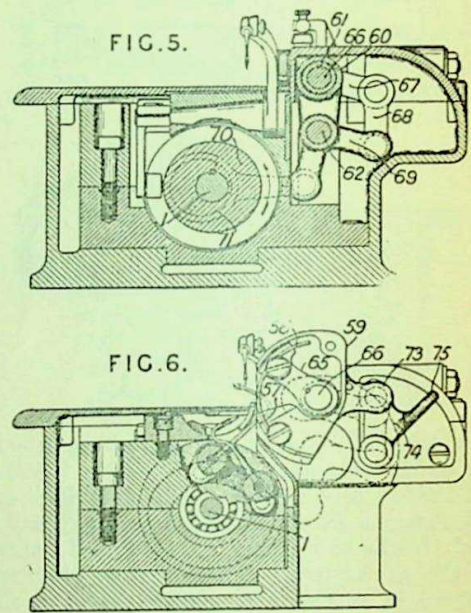
219,588. Avis, S. W. Jan. 8, 1924.



Sewing-machines; feed by dogs; duplex feed; feed, regulating.—Front and rear feed-dogs are given feed and lifting movements from a single cam, the feed movements being independently adjustable and the lifting movements taking place in unison and in a plane at right angles to the feed movements. A front feed-dog 37 and a rear feed dog 38 are given lifting and feed movements by a cam 36. The feed-dog 38 is secured to a carrier 39 having a cylindrical under-surface fitting in a fixed block 40. A pair of lugs 41, Fig. 9, project downwardly from the carrier and are engaged by a tooth 42 projecting from a forked lever 43 embracing the cam 36. A rocking movement is thus given to the carrier and a rising and falling movement to the dog. The dog 37 is attached to a carrier 46 having an angular lower surface fitting in a corresponding recess in the carrier 39 and held in position by a fixed plate 47 having a cylindrical surface resting on the upper surface of the carrier 46. The feed-dogs are oscillated together by this arrangement. Separate variable feed-motions of the dogs are effected by mechanism comprising a yoke 48, Fig. 6, embracing the cam 36 and guided by a roller 49. Rollers 51 carried on each side of the yoke engage radial slots 52 in adjustable bell-crank plates 53 mounted on tapering arbors 54 seated eccentrically in cylinders 55 rotatable within openings in the casing. Curved slots 62 in the plates 53 receive rollers 63 mounted on bell-crank levers 64 which have concentric arbors 65, 66 and carry rollers 67, 69 en-

gaging slots 68, 70 in the dog-carriers 39, 46 respectively. By rotating the cylinders 55 the relative positions of the rollers 51 and the pivots of the plates 53 are varied and the throw of the feed-dogs independently adjusted. This feed mechanism is employed in an overseaming machine having stitch-forming devices, trimming mechanism, and a presser-foot which are described and are of the construction set forth in Specifications 219,587 and 219,589.

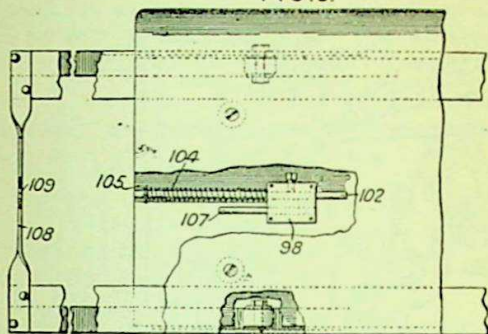
219,589. Avis, S. W. Jan. 8, 1924.



Sewing-machines.—Trimming mechanism comprises a fixed blade 57 and a movable blade 58 supported in a housing 59 which is supported by parallel links so that it may be adjusted to vary the width of trimming or swing aside from the stitch-forming implements. The housing is attached to a sleeve 60 supported in a yoke-shaped frame 61 mounted on an arbor 62. A projection 73 on the housing is pivoted to a link 74 pivoted on the frame and provided with a finger-piece 75 by which the adjustment is effected. The movable blade is secured to an arm 65 projecting from a shaft 66 from which also projects an arm 67 connected by a link 68 to a bell-crank lever 69 mounted on the arbor 62 and rocked by an eccentric 70, 71 driven by the main shaft 1. The trimming mechanism is employed in an over-seaming machine having stitching and feed mechanism and a presser-foot which are also described and are of the construction set forth in Specifications 219,587 and 219,588.

219,843. **Armstrong, J. J. V.,** (Union Special Machine Co.). Oct. 20, 1923.

FIG. 9.



Sack-sewing machines.—A machine for closing the mouths of filled sacks comprises a tubular and angle-iron frame carrying vertically adjustable supporting means for tracks and for the sewing-head, a carriage running on the tracks and returned to initial position by positive means after a sewing operation and means for controlling a motor mounted on the adjustable sewing-head in spite of the variation of its distance from a controlling lever on the base. The frame comprises an H-shaped base formed of angle-iron supported on rollers 2 and a castor 6 and carrying tubular uprights 7, 8 on which are mounted sleeves 15, 16 carrying brackets which support rails 21, and sleeves 43 connected by a tubular member 46 which supports the sewing-head. The tracks 21 and the sewing-head are respectively counterbalanced by weights 34, 82 located in the tubes 7, 8 and connected to the frame by cords &c. passing over pulleys mounted on the supported parts so that the weights need be only half as heavy as the latter. The sleeves are locked in adjusted position by clamping screws. The adjustment of the sewing-head is effected by the movement of a hand-lever 90 pivoted to an adjustable sleeve 93 on the post 7 and connected to the platform 52 supporting the sewing-head by a link 94. The stitching mechanism is driven by a motor 60 mounted on the plate 52 and connected to the driving pulley 59 by a belt 64. The pulley 65 is adapted to be thrown into or out of clutching engagement with the motor by means operated by a treadle 74 on the base which acts through linkage, to turn a squared rod 68 having a sliding fit in a slot in an arm 67 in which is mounted the stem of a yoke 66 connected to a ring on the hub of the pulley 65. The arm 67 is supported by a bracket 69 adjustably mounted on the plate 52. A sack-supporting carriage 27 comprising spaced plates 28, 30 between which are mounted guide rollers 31 is mounted to run on rollers 32 arranged at intervals along the tracks 21, the rollers 31 engaging flanges 33 on the tracks. Means for returning the carriage after the delivery of a sewed sack therefrom comprises a spring 104 surrounding a rod 102 carried by a block 98 on the carriage and bearing against a washer 105. As the carriage reaches the end of its travel the rod enters an

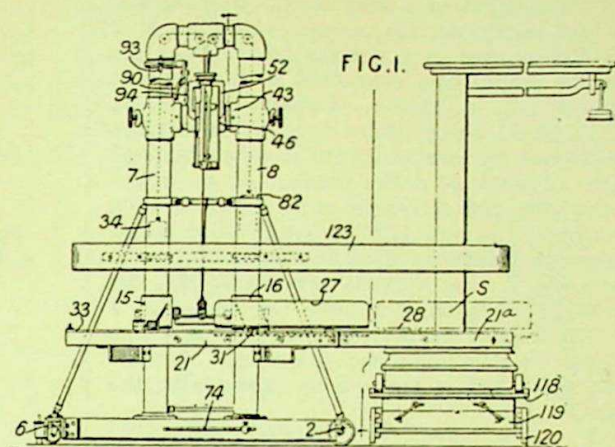


FIG. 7.

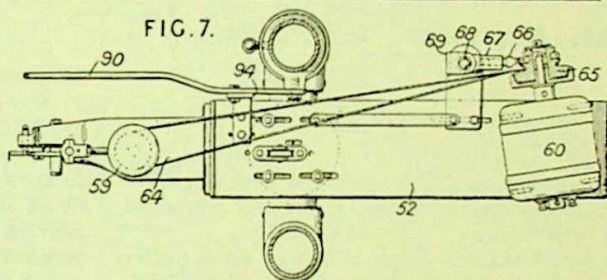


FIG. 11.

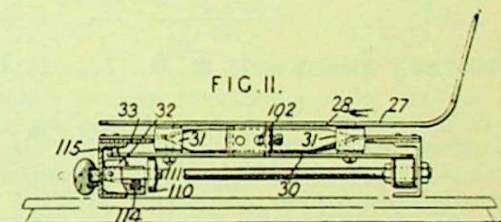
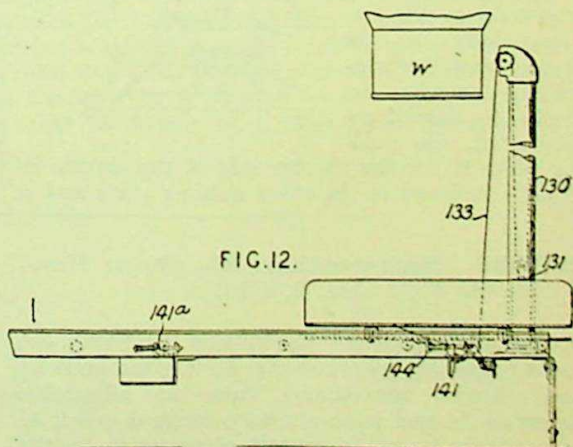


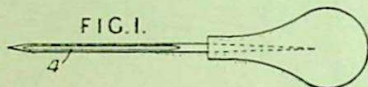
FIG. 12.



opening 109 in a bar 108 connecting the tracks, and the spring is compressed to a limit set by a stop rod 107. On release of the sack the spring thrusts the carriage backward to the other end of the track where the lower plate 30 rides up on to a roller 110. Fig. 11, mounted on a spring-supported stub-shaft 111 adjustably mounted in the track. The consequent lifting of the carriage causes a stud 115 to engage a slot in the plate 30 and lock the carriage until it is depressed,

against the action of the shaft-supporting spring 114, by the weight of a filled sack. In a modification, the return of the carriage is effected by a weight 131 housed in a tubular post 130 at the end of the tracks and connected to the carriage by a cord 133, as shown. Buffers 141, 141^a, laterally spaced, are provided to stop the carriage on its return by contacting with a bracket 144 laterally adjustable on the carriage so as to engage the stop 141 for sacks to be filled through a shoot *w*, or the stop 141^a for ready filled sacks. The apparatus may be used in conjunction with scales *S* which support auxiliary tracks 21^a, the scales being mounted on a table 118 carried by a frame 119 slidably supported by a rack 120. The scales are wheeled into place up a ramp. A sack-guiding plate 123 is secured by brackets to the uprights 7, 8.

220,363. Coe, G. W. May 12, 1923.

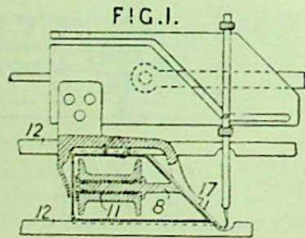


Awls.—A sewing-awl is provided with a groove 4 to receive a needle which is thereby conveyed through the work.

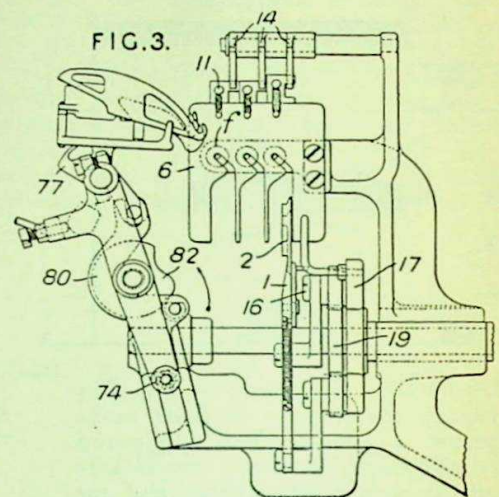
Reference has been directed by the Comptroller to Specifications 18537/01, 7942/02 and 6267/06.

220,752. Blackwell, E. O. June 15, 1923.

Lock-stitching by shuttles.—In a machine of the kind described in Specification 4030/02, a groove 17 in the forward face of the shuttle and the supporting grooves on each side thereof are connected, the guiding plate 12 for the shorter side of the shuttle is slightly inclined to the other guiding plate and a



220,366. Spiers, W. May 14, 1923.



Knot-tying devices.—Knot-tying devices such as the knot-tying bills described in Specifications 18778/00 and 2311/03 are used for uniting the ends of threads or yarns in knitting-machines using a number of different yarns. The quadrant 77 of the knotting-device has a pin-and-slot connection with a cam-lever 80 pivoted on a sliding block 74 and operated by a cam 82 carried by a crank-arm.

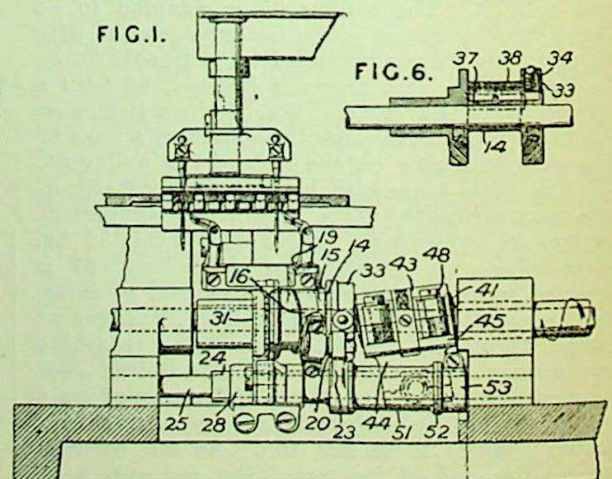
separate bushing 11 fitting within a commercial reel is employed in connection with the supporting rod 8.

220,761. Gregory, G. W. June 22, 1923.
Drawings to Specification.

Sewing, work-holders for.—A tambour frame comprises an inner ring and a split outer ring both of channel section. The latter is tightened upon the bed of the channel in the inner ring by a left and right hand screw. The rings may be made of metal with beaded edges.

220,882. Fairweather, W., (Singer Manufacturing Co.). Jan. 9, 1924.

Chain-stitching and double-loop stitching.—A sewing-machine looper-carrier 31 is given endwise and sidewise movements from an adjustable eccentric 14 and from a rotary inclined crank 41 respectively so as to permit of variation in the relative timing of the eccentric and the crank. A sleeve 24 loosely mounted on a rod 25 carries a bracket 28 on which is fixed the looper-carrier 31. A spherical-headed pin 20 is secured in a slotted arm 23 of the sleeve 24 and pivots in a pitman 16. A yoke on the pitman is pivotally connected by a bolt 19 to a split strap 15 of an eccentric 14. A sleeve 51 journaled for oscillatory movement on the sleeve 24 is held from axial movement thereon between the arm 23 and a split nut 52 clamped upon the threaded end of the sleeve 24 by a band

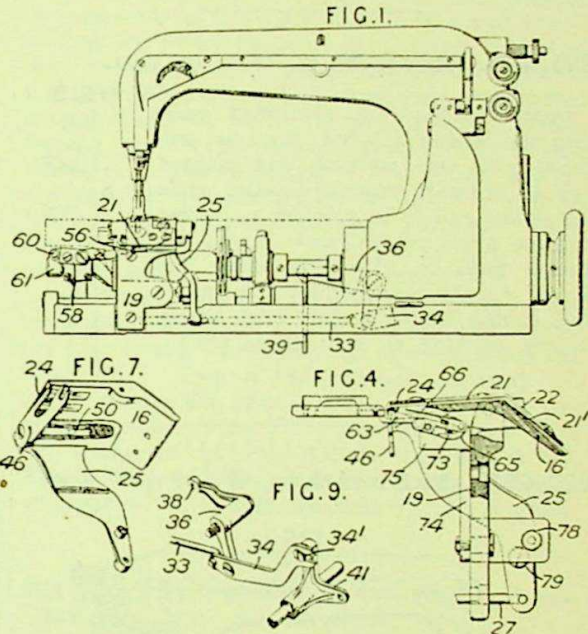


53. An arm of the sleeve 51 is universally jointed to an arm 44 of the crank 41, which has a circumferential rib 43 to prevent axial movement of the split crank-arm sleeve 45, 48. The eccentric 14 carries a flange 33 which contains a spring-closed

oil passage 34 communicating by a number of passages 37, 38 with the bearing surface. The bolt 19 is hollow and contains radial passages for passing oil to its bearing surface.

221,115. Fairweather, W., (Singer Manufacturing Co.). Nov. 13, 1923.

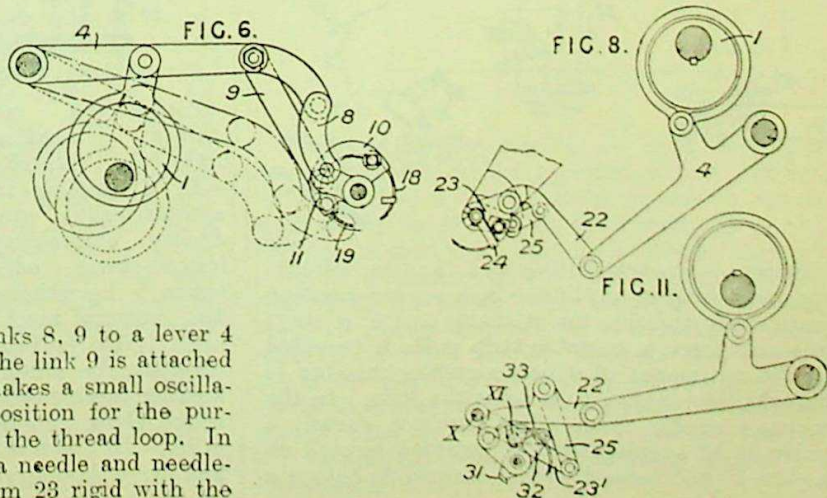
Sewing - machines; braids and the like, attaching; trimming or cutting.—A machine for attaching strips or stays to shoe uppers comprises a guide for the strip, part of which is adapted to be depressed by manual operation so as to cause the severing of the strip. In the multiple-needle chain-stitch machine shown, a guide 16 of angular form is provided pivoted on a plate 19 and formed with a channel 21 having a tension finger 21'. The channel 21 is covered by a plate 22 and an L-shaped member 24 which forms a ledger-blade of the cutting mechanism. An arm 25 depending from the strip-guide is connected to a rod 27 transverse to the machine and stressed by a spring so as to hold the guide normally in the upper position. The end of the rod 27 is engaged by the bevelled end of a rod 33 pivoted to a link 34 mounted on one arm of a lever 36 the other arm 38 of which is under manual control through a rod 39, lifting of the rod effecting the depression of the guide. The forked end 34' of the link 34 engages a bell-crank 41 the movement of which lifts the presser-foot. A second cutting blade 46 having a forked end is mounted on a spring-stressed pivot 50 by which it is held up to the edge of the ledger-blade 24. The end of the blade 46 engages a fixed stud to hold the blade in fixed position or engages a pin 56 connected to a lever 58 having a pin 60 extending into the sleeve of a strap 61 embracing an eccentric on the main shaft. In the latter case the lower blade is continually reciprocated, but is only effective to cut the strip when the guide is depressed. An extension 63 of the feed-dog carrier carries a small rocker 65 supporting a



strip-feeding member 66 which projects through a slot in the guide and engages the underside of the strip. Means are provided for withdrawing the member 66 from contact with the strip comprising a wedge 73 adapted to be pressed into engagement with the lower arm of the rocker 65 against the action of a spring by a bent lever 74 having a lateral face 75 which is pressed against a member 69 carrying the wedge. The movement of the lever 74 is effected by the engagement of a roller 78 thereon by a roller 79 on the arm 25.

221,130. Sokal, S., (Adrian & Busch). Dec. 13, 1923.

Lock - stitching by hooks.—The operative parts of a shoe-sewing machine are driven by links connected to a single lever pivoted on a fixed shaft and actuated by an eccentric. In the arrangement shown in Fig. 6 the carriers 10, 11 of a curved needle 18 and awl 19 concentrically mounted are connected by links 8, 9 to a lever 4 driven by the eccentric 1. The link 9 is attached by ball joints. The needle makes a small oscillation when in its retracted position for the purpose of freeing the barb from the thread loop. In the arrangement for driving a needle and needle-guide shown in Fig. 8, an arm 23 rigid with the

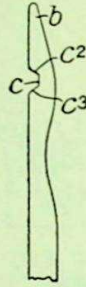


needle-guide 24 is connected by a link 25 to the link 22 connecting the needle-carrier to the lever 4. A mechanism for driving a thread-finger 31 is shown in Fig. 11, and comprises a link 25 connected to the needle-actuating link 22 and to a lever 23' pivoted to a fixed part at X and a link 33 connecting a point XI on the lever 23' to an extension 32 of the finger 31.

221,423. Rose, M. C. Feb. 12, 1924.

Crochet hooks.—A combined knitting-needle and crochet hook is provided with one working end pointed like an ordinary knitting-needle, while the other end *b* is pointed as shown and has a transverse groove *c* with inclined walls *c*², *c*³ which allow the thread to slip readily past the groove and enable either crochet-work or ordinary knitting to be done at will.

FIG. 3.



221,461. Fairweather, W., (Singer Manufacturing Co.). Nov. 13, 1923.

FIG. 1.

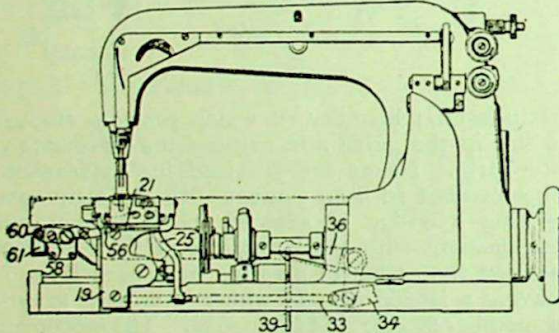


FIG. 4.

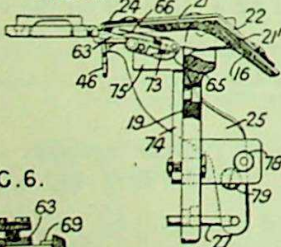


FIG. 6.

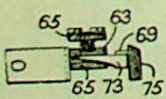


FIG. 7.

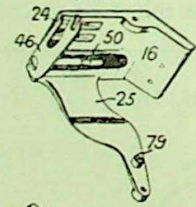
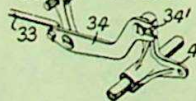


FIG. 9.



Sewing-machines; braids and the like, attaching; trimming or cutting.—In a sewing-machine particularly suitable for attaching strips or stays to shoe-uppers, a movable strip guide is provided by the movement of which a cutting member is brought into operation to sever the strip. In the multiple needle chain stitch machine shown, a guide 16 of angular form is provided pivoted on a plate 19 and formed with a channel 21 having a

tension finger 21'. The channel 21 is covered by a plate 22 and an L-shaped member 24 which forms a ledger-blade of the cutting mechanism. An arm 25 depending from the strip-guide is connected to a rod 27 transverse to the machine and stressed by a spring so as to hold the guide normally in the upper position. The end of the rod 27 is engaged by the bevelled end of a rod 33 pivoted to a link 34 mounted on one arm of a lever 36 the other arm 38 of which is under manual control through a rod 39, lifting of the rod effecting the depression of the guide. The forked end 34' of the link 34 engages a bell-crank 41 the movement of which lifts the presser-foot. A second cutting blade 46 having a forked end is mounted on a spring-stressed pivot 50 by which it is held up to the edge of the ledger-blade 24. The end of the blade 46 engages a fixed stud to hold the blade in fixed position or engages a pin 56 connected to a lever 58 having a pin 60 extending into the sleeve of a strap 61 embracing an eccentric on the main-shaft. In the latter case the lower blade is continually reciprocated but is only effective to cut the strip when the guide is depressed. An extension 63 of the feed-dog carrier carries a small rocker 65 supporting a strip-feeding member 66 which projects through a slot in the guide and engages the underside of the strip. Means are provided for withdrawing the member 66 from contact with the strip comprising a wedge 73 adapted to be pressed into engagement with the lower arm of the rocker 65 against the action of a spring by a bent lever 74 having a lateral face 75 which is pressed against a member 69 carrying the wedge. The movement of the lever 74 is effected by the engagement of a roller 78 thereon by a roller 79 on the arm 25.

221,678. Vogtlandische Maschinen-Fabrik (vorm. J. C. & H. Dietrich) Akt.-Ges., and Brase, W. Oct. 30, 1923.

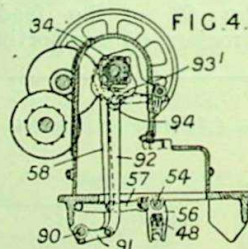


FIG. 4.

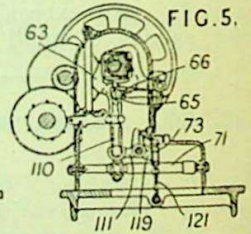
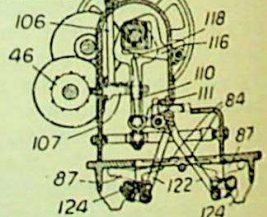


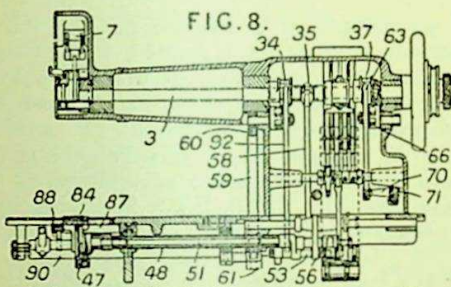
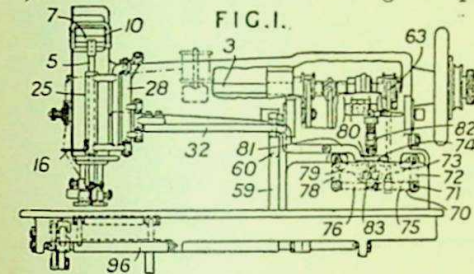
FIG. 5.

Embroidery machines; needles, vibrating laterally.—In a machine for automatically producing embroidery, festoon-seams, edge-seams, hemstitches &c., jacquard mechanism is provided whereby the stitch-forming mechanism and the feeding mechanism may be displaced at every stitch along two directions inclined one to the other. In the machine shown in Figs. 1, 3, 4, 5 and 8, a laterally movable needle-bar 5 is re-

FIG. 3.



ciprocated by a lever-frame 7 connected to the shaft 3 by a link and having sliding connection by means of a frame 10 with the needle-bar. A thread-guide 16 is carried by a sleeve 25 for the bar 5 forming part of a frame by which the lateral needle movements are conveyed. This frame is pivoted to a frame 28 pivoted to the machine frame and actuated by a rod 32 connected to the jacquard mechanism. A shuttle casing 47 is carried by a tubular member 48 displaceable synchronously with the needle and surrounding a shuttle-operating shaft 51. The shaft 51 is given stitch-forming oscillations by mechanism comprising a pin 53 carried by the cranked end of the shaft, a slotted lever 56 embracing the pin and



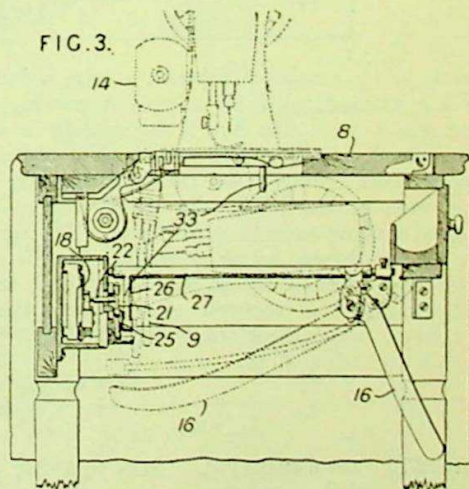
mounted on a shaft 54 and a lever 57 connected to the lever 56 and oscillated by a link 58 connected to a crank 35 on the main shaft. The link 32 and sleeve 48 are connected to arms 60, 61 projecting from a shaft 59 and thus share in movements communicated by the jacquard device. These movements are effected by mechanism comprising a forked lever 63 cooperating with a cam 37 on the main shaft and mounted on a pivot 65 which engages a slot in a member 66 adjustably secured to the machine frame. By varying the inclination of the slot the lever 63 is caused to perform movements of varying amplitude in a vertical direction. The lever 63 is connected to an arm 70 on a shaft 71 from which projects an arm 72, Fig. 1, to which is attached an arm 73 carrying a knife edge 74. An arm 75 also projects from the shaft 71 and engages a forked arm 76 mounted on a shaft carrying an arm 78 pivoted to an arm 79 having a knife-edge 80. The arms 73, 79 make reciprocations in opposite directions. A member 81 is pivoted to the end of the link 32 so as to be capable of turning in a vertical plane and this member is formed with a toothed rack which is pressed by a spring-bolt 82 into engagement with a fixed knife-edge 83 to lock the link 32 against movement. The members 73, 79 are raised selectively by the jacquard device to release the link 81 and actuate it to displace the sewing mechanism.

Feed by dogs. — The shifting of the work is

effected by feed dogs 84 on members 87 one of which is linked to a pair of arms 88 extending from a shaft 90. An arm 91, Fig. 4, on the shaft 90 is connected to a forked lever 92 embracing a cam 34 and having a pivot 93 which engages a slot in an angularly adjustable member 94 by the inclination of which the lever 92 is caused to reciprocate vertically. The other feed-dog is held in position by arms projecting from a shaft 96 connected to the shaft 90 by a link and levers so that the two dogs move oppositely. The feed dogs are selectively lifted to engage the work by the jacquard device which comprises a polygonal drum 46 geared to the main shaft and having thereon pins which engage perforations in the plates of a pattern-chain. Projections on the chain-plates are adapted to engage the ends of four arms 107 mounted on arms 106 which when moved displace fingers 110 linked at their lower ends to levers 111. An abutment 118 on a forked lever 116 continuously moved up and down by a cam engages a displaced finger and effects the downward movement of the corresponding lever 111. Two of the levers have arms 119 which engage the arms 73, 79 of the needle displacing mechanism. The other levers have arms 121 connected by links 122 to turn shafts 124, Fig. 3 from which extend arms having a lifting engagement with the members 87.

221,729. Fairweather, W., (Singer Manufacturing Co.). Feb. 15, 1924.

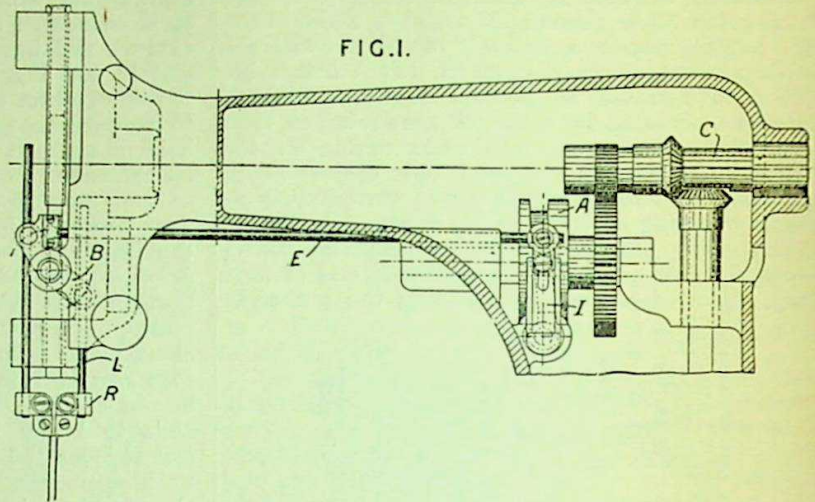
FIG. 3.



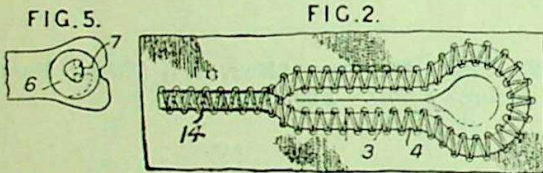
Sewing-machines; driving. — In a drop-head sewing-machine cabinet provided with a rheostat for controlling a driving motor, a locking device is provided for preventing the movement of the rheostat to start the motor while the sewing-head is in its lowered position. The rheostat arm 18 controlling the motor 14 is actuated by a knee-lever 16 through connections comprising a rock-shaft 27, arm 26, link 25, lever 21 and pin 22. A pin 33 on a lifter-plate 9 on the sewing head moves into the path of the lever 21 when the sewing head is lowered. In a modification an arm projecting from the shaft 27 is blocked by the plate 9 itself.

221,776. Anciens Etablissements R. Cornely et Cie., Soc. Anon. Sept. 14, 1923, [Convention date].

Needles, vibrating laterally.
—Needle-jogging mechanism for a two-needle hemstitch or openwork embroidery machine making a single seam comprises a double lever, disc or like member B which is oscillated through a connecting-rod E, and a lever I of adjustable length, from a cam A. The member B actuates the needle-holders R by means of rods L fixed to the holders and slidingly jointed to the member B.

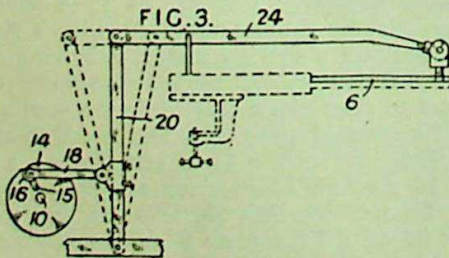


221,952. Fairweather, W., (Singer Manufacturing Co.). Sept. 18, 1923.



Button-hole sewing-machines. — In a button-hole for knitted material a cord 4 passing once round the button-hole slit is secured by a series of staggered and keyed thread loops 3 passing in straight lines through the fabric in contact with either side of the cord, the slight deflection of the cord serving to hold it in place. The stitches may be produced by a vibrating needle. An under cord guided by a passage-way 7 in the needle-throat 6 is secured at the same time as the cord 4. Specifications 14300/12, 179,278 and 183,873 are referred to.

222,087. Watson, J. May 9, 1924, [Convention date].



Sewing-machines; needles; driving. — A boot-sole sewing-machine of the kind usually driven

by hand by means of a handle on the sliding needle-carrying bar 6, is actuated by a power-driven shaft 10 connected to the bar 6 by a slotted disc 14, link 18, rocking-bar 20 and link 24. The throw of the needle-bar may be varied by adjustment of the pin 16 of the link 18 in the slot 15 and adjustment of the attachment of the link to the bar 20. The shaft is driven by a clutch-connected belt-pulley.

222,175. Denne, M. T., and Gimson
Shoe Machinery Co., Ltd. June 19, 1923.

Boot - sole sewing - machines; rotary horns; threads, waxing.—In a barbed-needle, lock-stitch sewing-machine having a rotary-horn, the main take-up for the needle-thread is constituted by a vibrating lever located within the horn. The horn e , Figs. 1 and 3, which has a removable cover-plate e^{13} , is fixed to a stand e^1 having an extension rotatably mounted in a casing c fixed to the machine frame b . Mounted axially with the casing is a hollow shaft a^{60} driven through shafts a^{57} , a^{54} , Fig. 1, from the main-shaft a^2 . The shaft a^{60} drives the whirl-actuating shaft a^{67} through gearing a^{63} - a^{66} , Fig. 3, at such a speed that the whirl maintains a definite position with respect to the needle irrespective of the position of the horn. A hollow rod e^8 , which passes through the shaft a^{67} , is linked at its upper end to the main take-up lever e^5 , and is reciprocated by a bell-crank e^{10} , Fig. 1, which is rocked by a cam e^{11} on the shaft a^{57} . The needle-thread passes through a wax-pot e^{29} containing a guide-roll and a stripper, a tension e^{32} , a thread-lock e^{25} , the hollow rod e^8 and a slot in the lever e^5 , Fig. 3, to a guide-roll e^{19} whence it passes over a spring-pressed auxiliary take-up e^{17} to the main take-up and thence over a guide-roll e^{13} .

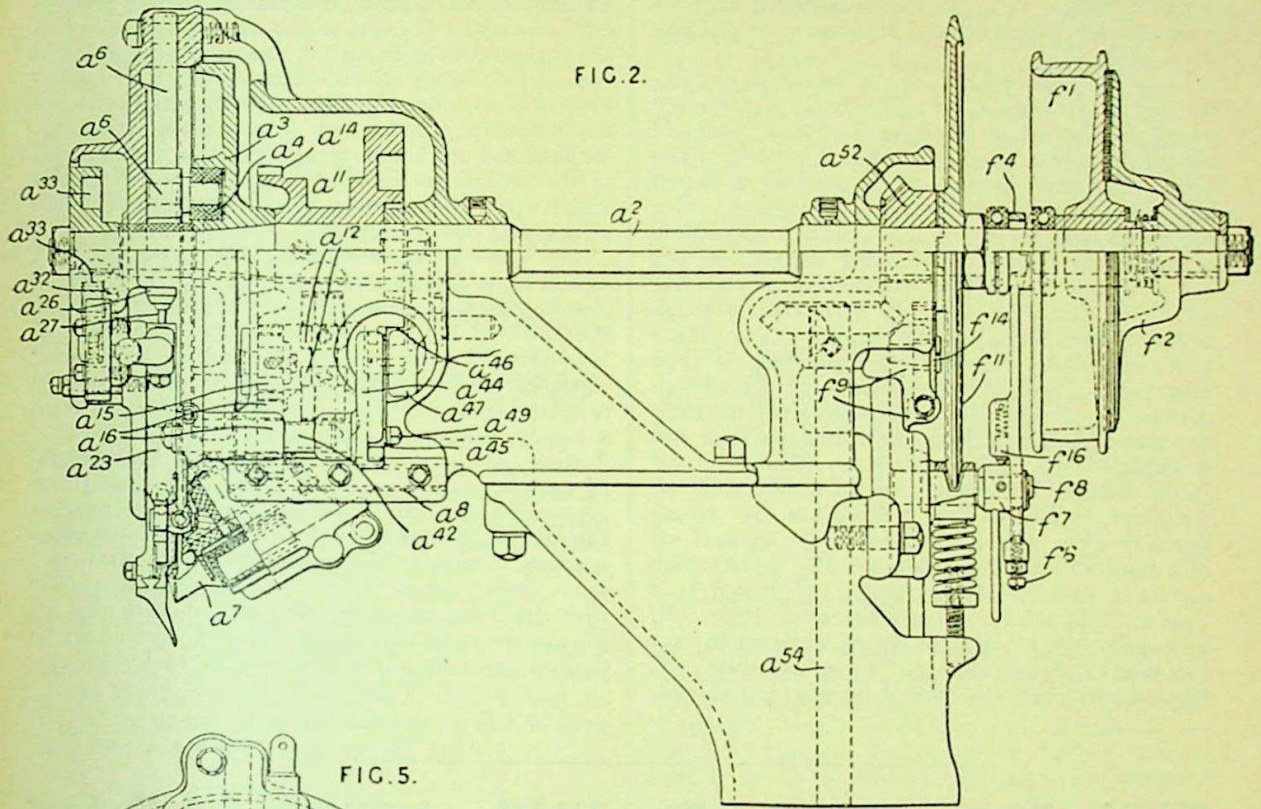


FIG. 2.

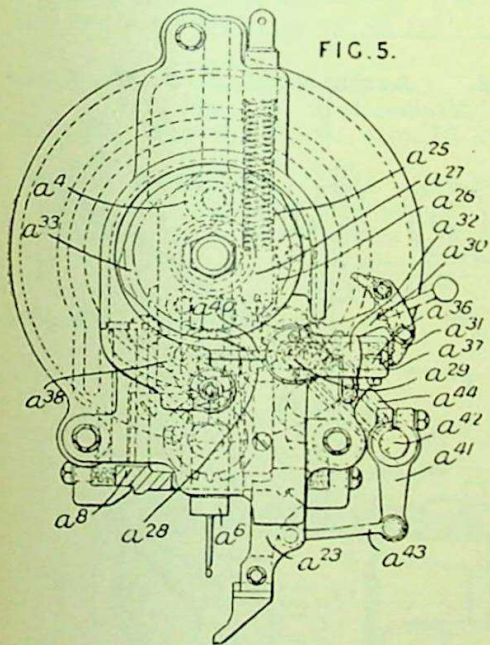


FIG. 5.

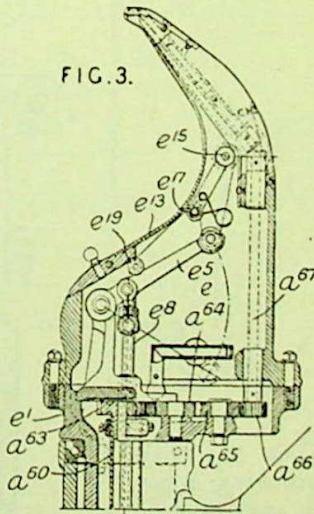


FIG. 3.

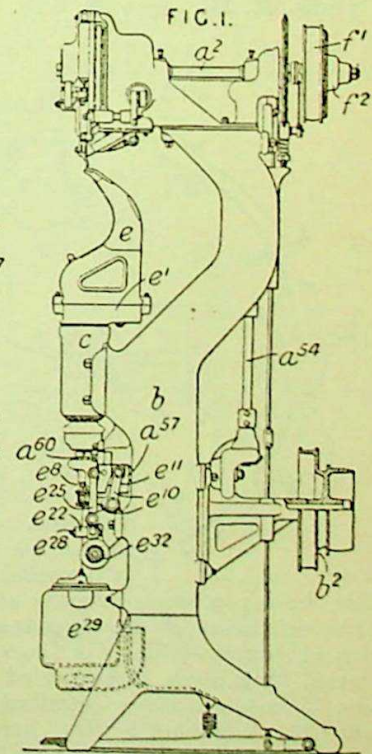


FIG. 1.

to the whirl. The thread-path from the main take-up to the whirl is short and is bent only at a very obtuse angle so that the danger of breaking the thread at high speed is reduced. The thread-lock comprises a post, between the end of which and a screw-plug e^{28} in a collar e^{22} sliding on the post, the thread is normally locked against the action of a spring by a cam-actuated lever e^{25} .

Lock-stitching by shuttles.—The needle-bar a^6 , Fig. 2, is reciprocated by the engagement of a roller a^4 carried thereby with a face-cam a^3 on the shaft a^2 . The shuttle a^7 is carried by a slide a^8 which is reciprocated toward and from the

needle by a rod a^{12} which engages in the slide and in a cam-groove a^{11} . The shuttle-shaft is rotated from the shaft a^2 through gearing a^{14} - a^{16} , so that it revolves twice for each needle

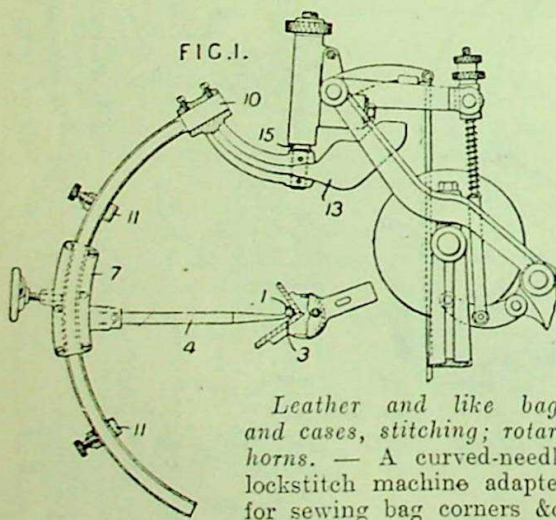
reciprocation. The shuttle is recessed to take a cop-holder which is held stationary in position by a stop.

Feed by presser-foot.—A four-motion presser bar a^{23} is pivoted at a^{28} , Fig. 5, to a lever a^{30} which is pivoted at a^{29} coaxial with a lever a^{22} actuated from a cam a^{23} on the shaft a^2 . The lever a^{22} carries a slide a^{36} comprising a detent a^{27} which is spring-pressed into engagement with a toothed segment a^{31} on the lever a^{30} . The slide is moved to disengage from the segment a^{31} by a link connection a^{40} with a cam-actuated lever a^{38} . A spring a^{25} acts on the presser-bar through a pad a^{26} and a rod a^{27} . The cams are so timed that the detent raises the presser-bar, is then disengaged to allow the presser-bar to be spring-pressed on to the work irrespective of its thickness, and then returns to its initial position and re-engages with the segment a^{31} . The lever a^{30} has a handle by which the presser-bar can be manually raised. The presser-bar is swung laterally by a link connection a^{43} to an arm a^{41} of a shaft a^{42} , a slotted arm a^{44} , Fig. 2, on which carries a radial slide a^{45} which is pivoted to a similar slide a^{46} in a cam-actuated lever a^{47} . The slides a^{45} , a^{46} may be set up or down to vary the feed-dog and are clamped by a set-screw a^{49} . The feed-dog may be carried by a spring plunger

having limited vertical movement in the presser-foot, or may be pivoted to the shank, so that when the presser-foot is lifted off the work, the dog will remain in sliding contact therewith; this applies especially to machines for work in which stitches are made in grooves as in outsole stitching. To hold the work firmly against the upward pull of the needle the presser may have an extension about equal in length to the longest stitch in the compass of the machine.

Driving.—A loose clutch-pulley f^1 , Fig. 2, driven from the power-pulley b^2 , Fig. 1, is forced into engagement with a clutch-member f^2 fixed to the shaft a^2 by a wedge-block f^3 . The stem of the block f^4 is adjustably secured by a screw f^5 to an eccentric projecting from a collar f^7 which is rotatably mounted on a stud f^8 projecting from a treadle actuated slide-member f^9 . The stud f^8 also carries a brake-block for a brake-wheel f^{11} on the shaft r^2 . A roll f^{14} on the slide f^9 engages with the cam-boss of a wheel a^{52} to prevent stopping of the machine except at a predetermined position. Normally the collar r^7 is held stationary by a spring detent f^{16} . By turning the collar with its cam through 90° , the detent will be allowed to raise the wedge block f^4 out of action so that the cam shaft can be rotated by hand.

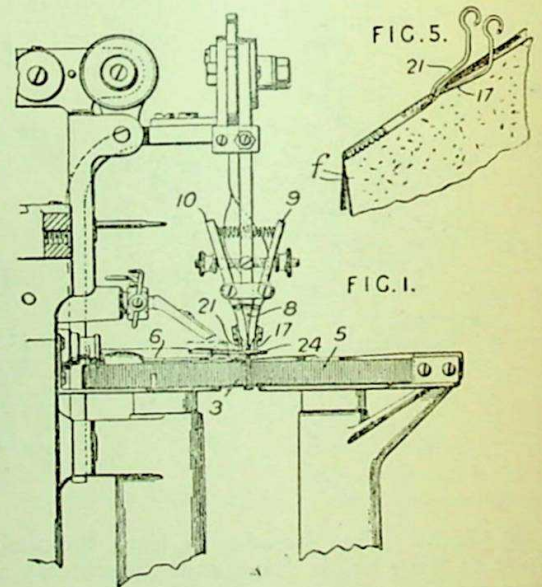
222,213. British United Shoe Machinery Co., Ltd., Ricks, F., and Woodcock, R. B. June 28, 1923.



Leather and like bags and cases, stitching; rotary horns. — A curved-needle lockstitch machine adapted for sewing bag corners &c. is provided with a rotary

horn having a work entering element which is adjustable about its tip transversely to the direction of horn rotation. A curved horn 10 is carried by a block 13 supported rotatably on an axis 15 in the manner described in Specification 198,430. A bracket 7 which may be clamped in adjusted position along the horn 10 carries a work entering arm 4 having a ball-end 3 on which is mounted a work-engaging roll 1 which coacts with an external work-support 2. Collars 11 may be adjustably mounted on the horn to assist the rapid positioning of the arm 4.

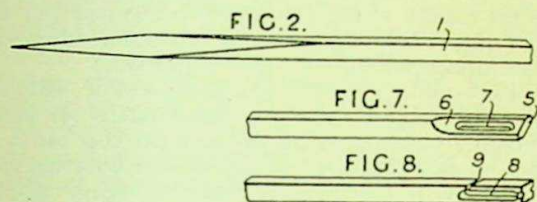
222,322. Armstrong, J. J. V., (Union Special Machine Co.). Oct. 12, 1923.



Overhead sewing-machines; folding-devices.—In seaming chiffon, hose, or the like, the edge portions, after being uncurled, are turned over on to the face of one section and are then entirely enclosed by overseaming stitches. The two portions of material f , Fig. 5, are led to the feed wheels 3, 5 between spring-pressed uncurling members 9, 10 and a central plate 8. Attached to the members 9, 10 are straight and curved wires 17, 21 which extend underneath the stitch.

finger 24 and fold over the edges of the material as shown in Fig. 5. A needle 6 and a threaded looper 4 co-operate to unite the fabric portions.

222,648. Wharrad, L. A. Sept. 8, 1923.

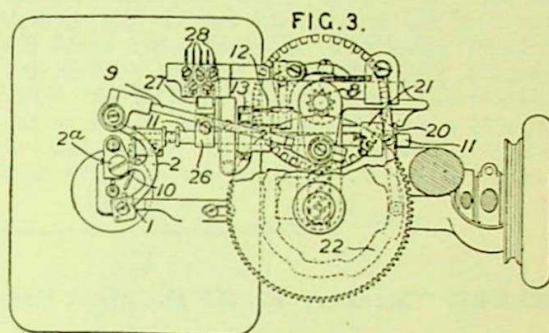


Sewing-needles.—A packing-needle is manufactured by pointing one end of a flat wire 1, Fig. 2, by a diagonally-directed transverse grinding operation or by stamping, and thereafter grinding two or more faces of the wire around the pointed end. The point of the needle is preferably curved away from the base of the triangular base formed thereon. To form an eye therein, the blunt end is ground diagonally to form diametrically-opposed faces 5, 6, Fig. 7, which are pierced by the eye 7. A modified eye 8, Fig. 8, may be formed by means of a circular saw, a slot 9 being made for the entrance of the thread.

222,682. Smith, R. O. Oct. 12, 1923.

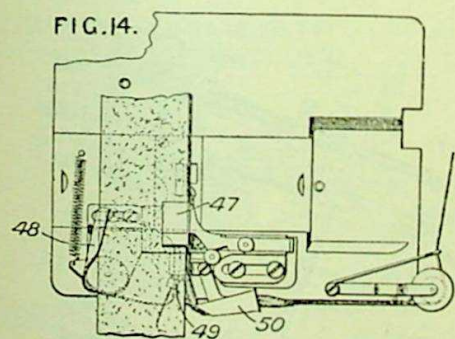
Fringing-machines; threads and the like, attaching.—In machines for stitching a series of cord-loops on to a fabric means is provided for

causing a loop-holder to vary its position during the stitching so that loops of different lengths are formed and in addition means are provided for omitting certain loops at will. The cord guide 1 is mounted on a lever 2 pivoted at 2^a and oscillated by a link 9 and crank 8 driven through gearing by the main shaft. A loop-detaining finger 10 is mounted on a shaft 11 which is both oscillated and reciprocated. The oscillations are effected by a cam-actuated spring-controlled lever

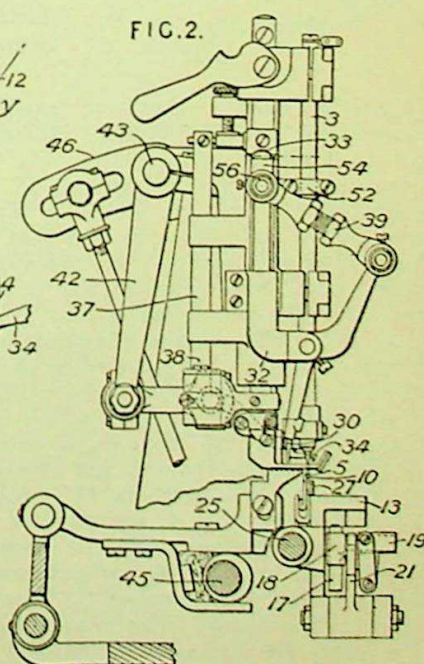
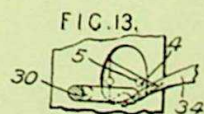
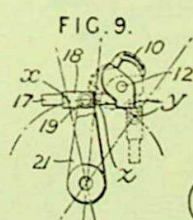


12 operated to depress an arm 13 feathered on the shaft 11 against a spring, the spring-operated stroke being the operative one. The reciprocation is effected by a lever 20, engaging a collar 21 on the shaft 11, and actuated by a stepped cam 22 formed so as to produce the particular arrangement of graded loops required. In order to provide for the omission of certain loops, the operative stroke of the finger 10 may be prevented at particular reciprocations of the shaft 11 by adjustable stops 28 one or more of which may be brought into the path of fingers 27 on an arm 26 secured to the shaft.

222,684. Armstrong, J. J. V., (Union Special Machine Co.). Oct. 16, 1923.



Double-loop stitching; needle-guides.—A sliding connection between an arm on the pivoted looper and the driving member is so arranged that the arm is substantially tangential to the driving member for part of its stroke to give an extended dwell to the looper. A threaded looper 10, Figs. 2 and 9, is mounted on a shaft 12 which carries an arm 17 on which slides a sleeve 18 carrying a spindle 19 which is journaled in the driving-lever 21, the shaft 12 and the lever 21 are mounted on a bracket 13 which is fixed on a rock-shaft 25 for giving the looper-mechanism



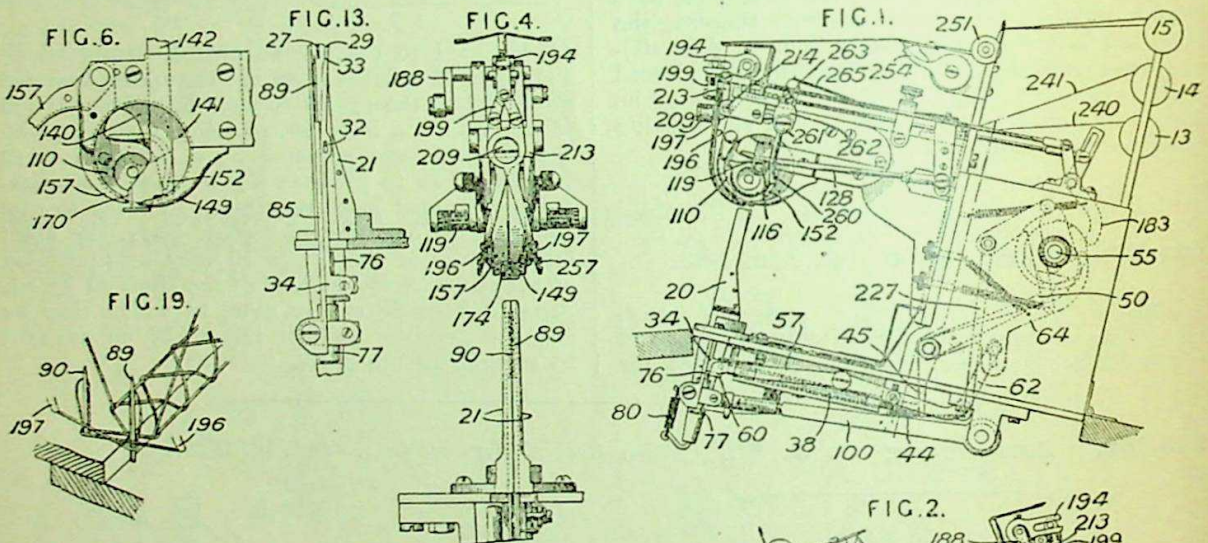
lateral needle-avoiding movements. The lever 21 has a stroke x, y , Fig. 9; when moving from x to z , the looper is practically stationary in the needle-thread loop, while during its movements between z and y , the looper moves through 90° out of and into the needle loop. A needle-guide 27 is also fixedly mounted on the shaft 25.

Multiple-needle machines.—For overedge-stitching, two needles 5, Fig. 2, which are set one lower than the other, pass one through the work and the other outside it, and co-operate with the looper 10, the outer needle also passing through a loop of thread from the inner needle above the work. A finger 30 and a hook 34 position the needle-thread loop as shown in Fig. 13. The finger 30 is pivoted on a bracket 32, Fig. 2, on the presser-bar 33 and is actuated in the line of feed by a link 39 which is pivoted at 56 to a

member 52, 54, fixed to the needle-bar 3 and embracing the presser-bar 33. The hook 34 is pivoted at 38 to a bracket on an auxiliary presser-bar 37 carried by the presser-bar 33. The hook 34 is actuated from an arm 42 of a rock-shaft 43 which carries a slotted arm 46, adjustably connected to an eccentric on the main shaft 45. The pivot 38 is situated so that the hook passes nearer to the needle 4, Fig. 13, than to the needle 5 and so forms a loop in the needle-thread which has been drawn forward by the finger 30.

Work-guides; cords, attaching.—For stitching sweat-bands into hats, a fixed guide 47 and a swinging yielding guide 48 position the band. A reed-guide 49 directs a reed into a covering-strip folded by a folder 50. The covering stitches encircle the reed and the edge of the covering strip.

222,691. Dicker, S. G. S., (Lock-Edge Machine Corporation). Nov. 5, 1923.



Multiple-needle machines; needle-guides; presser-bars; surface threads, attaching.—In a post machine for sewing gloves twin needles 89, 90 are sweated into or clamped in holes in a needle-bar 85, Fig. 13, which is pivoted on a sleeve 77 slidingly mounted on a post 76, Fig. 1. The needle-bar is vertically reciprocated by a bell-crank 100, 97 from a cam 99, Fig. 2, on the main shaft 55. The needle-bar is held in place by a spring 80. The needles co-operate with rotary shutters 110 which are actuated by shuttle-drivers 152 on shafts 116 carrying a pinion 119 driven by an adjustable rack-bar 128, which is actuated through a lever 125 from an eccentric-actuated bar 124. The shuttle-races are formed by horns 149, pivoted latch-members 157, which leave a cast-off gap 174, Fig. 4, and partition walls 140, 141, Fig. 6, together with the presser-bar 142. Loopers 196, 197, Fig. 4, for surface threads are pivoted at 209 to a member 213 pivoted at 214, Fig. 2, to the frame. The loopers are connected by a toggle 199 having a pin-and-slot connection with a bell-crank 194, 188 which is in turn ad-

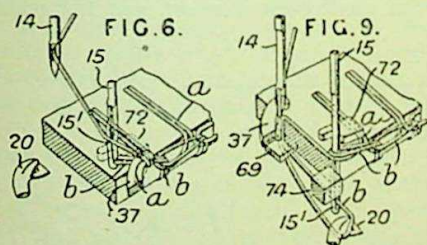
justably connected to a bell-crank 191, 207. The bell-crank 191, 207 is actuated by a cam on a shaft 204 having a one-to-two gearing with the main shaft 55. Thus the loopers cross once for each stitch. The member 213, Fig. 1, is oscillated through a rod connection with a cam-actuated bell-crank 183. As the needles emerge

from the post the loopers are in front of them in the direction of feed; as the needles penetrate the fabric, the loopers move backward, cross each other, and then move forward again to hold the threads tight around the needles. The needle-threads 240, 241 are guided from spools 13, 14, Fig. 1, to tensions 232, Fig. 2, below the bed-plate, are crossed over a post 249 on their way to a cam-actuated take-up lever 227 whence they are guided through a hole and a groove on the needle-bar to the needles. The surface threads pass from spools 15 to tensions 251, 254, Fig. 1, through guide-eyes 257, Fig. 4, on the loopers to the looper-noses. The presser-bar carries a needle-guiding lug 170 which co-operates with a similar lug on a spacing-member 27, Fig. 13, in the post. The presser-bar 142 has an arm carrying a roller 263, Fig. 1, which can be raised against an adjustable spring 265 by a cam 262 on a hand-lever 260.

Feed by dogs.—A feed-bar 29 is slidingly pivoted at 32 and is cut away at 33 to clear the member 27. A lug 34, Fig. 1, on the bottom of the feed-bar is linked to a rod 38, which is spring-pressed to the right, which carries an adjustable thimble 44 and which is reciprocated from a cam-actuated bell-crank 45, 50. A stirrup 60 on a lever 57 engages under the lug 34 to raise and lower the feed-bar when the lever 57 is oscillated through a link 62 adjustably connected to a cam-actuated lever 64. The feed-bar 29 acts as a guide for the needle-bar.

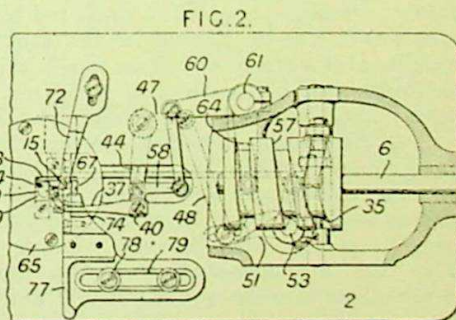
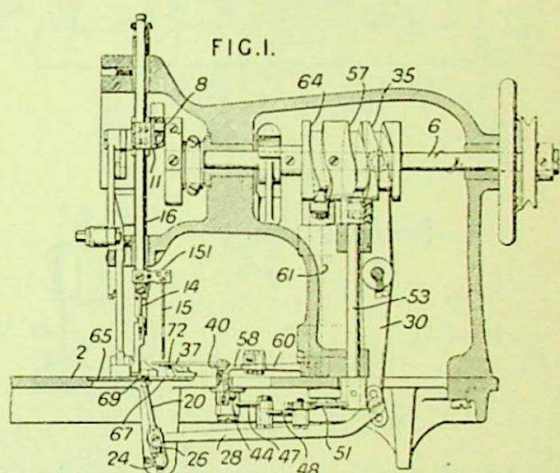
Work-supports.—The post 20 is formed of two parts 21, the upper front ends of which are L-shaped so as to form a flat front face for the post and to have a vertical slot therein to facilitate threading the needles. A spacing-member 27, Fig. 13, T-shaped in cross-section holds the parts 21 together.

222,721. Fairweather, W., (Singer Manufacturing Co.). Dec. 11, 1923.



Sewing-machines; loop-stitching; needles, driving; needle guides.—In an overedge sewing-machine in which the thread carried by an eye-pointed work-penetrating needle 14, Fig. 1, is enchainé at the margin of the work by a bearded needle 15 in conjunction with loop spreaders 37, 20 above and below the work, the spacing of the needles and the throw of the loop spreaders can be adjusted to a number of predetermined positions for substantially differing widths of seam. The needle-bar 16 carries a cam block 11, which coacts with a crank 8 on the main-shaft 6 to re-

ciprocate the needle-bar, and a needle-holder 151 which carries the needles 14, 15, the latter of which is clamped in any one of a series of apertures in the holder. The loop-spreader 20 is carried by member 26 pivoted at 24 and oscillated by a link 28 adjustably connected to a lever 30, which is actuated from a cam 35 on the main-shaft 6. The loop spreader 37, Figs. 1 and 2, is adjustably clamped to a bell-crank 40, 58 pivoted on the free end of the arm 44 of a bell-crank 44, 47 which is adjustably connected by a link 48 to an arm 51 of a shaft 53 which is rocked from a cam 57 on the main-shaft. The bell-crank 40, 58 is linked to an arm 60 of a second shaft 61 rocked from a cam 64 on the main-shaft. While



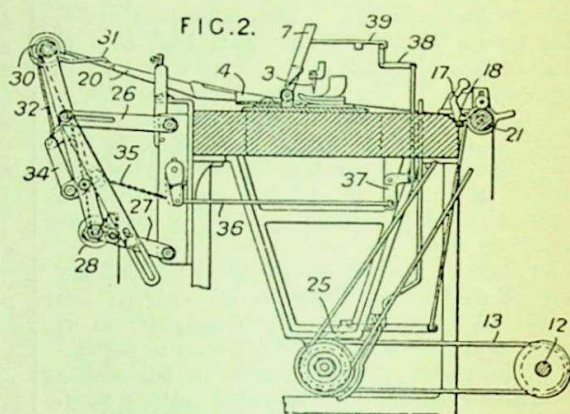
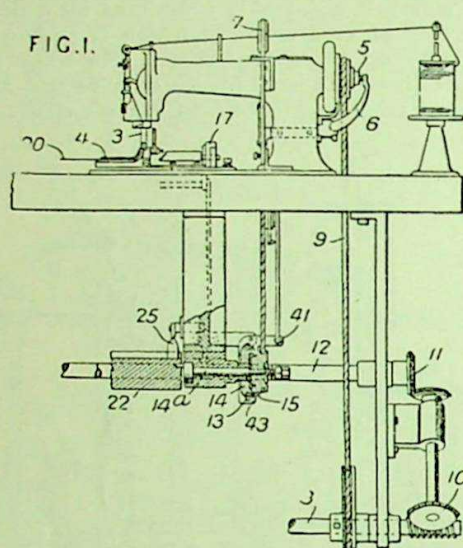
the needles are at the upper end of their stroke and the work is being fed, the spreader 37 is drawing a thread-loop to present to the needle 15. When the needles descend, and the spreader 37 completes its movement, the needle 15 descends between the arm of the upper loop *a* as shown in Fig. 6 carrying a loop *b* from under the work. The loop *b* slips past the beard 15' which is then closed between a back-guide 72, Fig. 2, mounted on the cloth plate 2 and a beard-closing block 74 mounted on an edge-guide 77. As the needles rise, the spreader 20 seizes a fresh loop *b*, thrown by the needle 14 and presents it to the beard of the needle 15, which seizes it as shown in Fig. 9 and is then closed to pass through the work and the two loops on its shank. The lateral stress produced by the drawing of the lower loop *b* is taken by a stitch-retaining finger 69, Fig. 2, having a bevelled edge slightly spaced from the bevelled edge 68 of the needle-hole 67 so that the

loops will feed readily on to the work-plate.

Work supporters and guides.—A circular throat plate 65 having a substantially rectangular needle-

hole 67 is secured in an opening in the cloth plate. An edge-guide 77 is adjustably secured upon the cloth-plate by screws 78 and a slot 79.

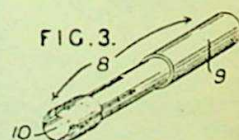
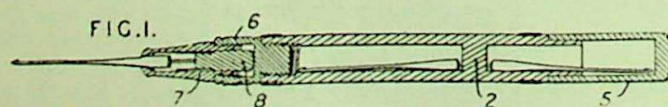
222,756. Boston, J. Feb. 29, 1924.



Grouped machines; feeding long lengths of fabric; driving.—Lengths of fabric fed to a sewing machine for hemstitching in the production of handkerchiefs are re-wound on to a friction clutch actuated roller, the speed of which is regulated by a brake controlled by the tension of the fabric. The fabric passes over tension rollers 28, 30 on a pivoted gate 26, 27, Fig. 2, to a folder 4 and sewing-mechanism 3. The stitched material passes under a roller 18 on a weighted lever 17, over a tension roller 21 to a winding roller 22, Fig. 1. A power-shaft 8 drives the sewing-mechanism through a belt-drive 9 and a clutch

5 and also drives a pulley 15 through gearing 10, 11, a shaft 12 and a belt drive 13. The pulley 15 is spring-pressed against a friction plate 43 on a shaft 14^a which actuates the roller 22, and drives the roller 21 by a belt 16. A starting lever 7 is operatively connected to a clutch-operating lever 6 and to a belt-shifter 41 for shifting the belt 13 to and from a loose pulley 14. The lever 17 is operatively connected to a brake 25 which acts on the roller 22 so that, if the tension on the material 20 becomes too great, the lever 17 is raised and the brake 25 is operated to slow down the roller 22. An arm 31 of a weighted bell-crank 31, 32, Fig. 2, which is pivoted in the gate 20. When the material fails, the bell-crank drops and actuates a series of links and levers 34 - - 38 to free a latch 39 on the lever 7 which is thereupon spring-actuated to stop the sewing-mechanism and the roller 22.

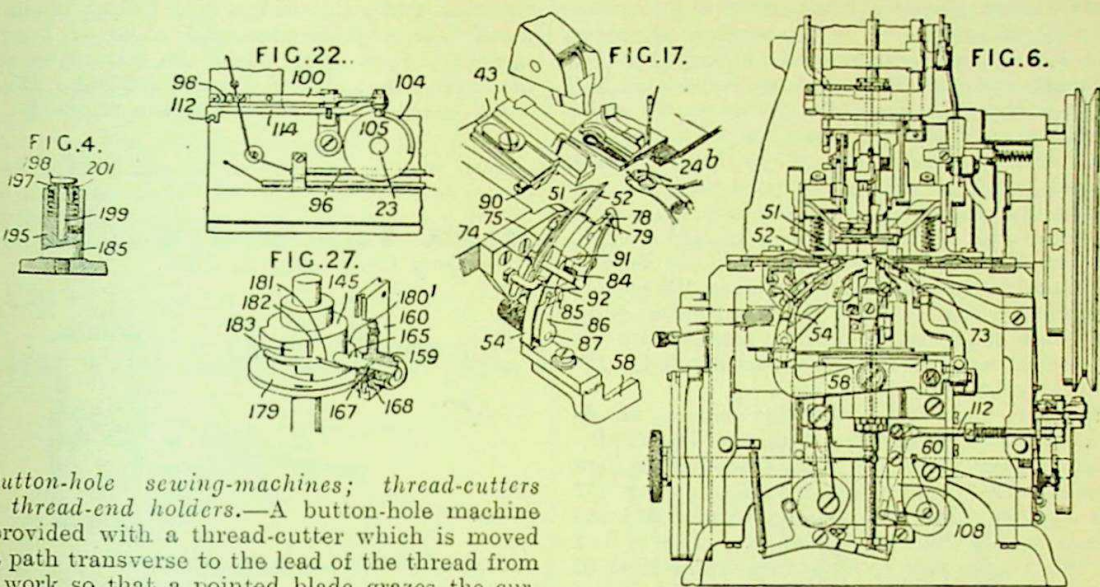
223,113. Morgan, T. F. Feb. 13, 1924.



Crochet hooks.—A handle suitable for crochet hooks, dental probes, screwdrivers, &c. consists of a cylindrical body divided by a partition 2 into two compartments for spare hooks &c., one compartment being closed by a cap 5 and the

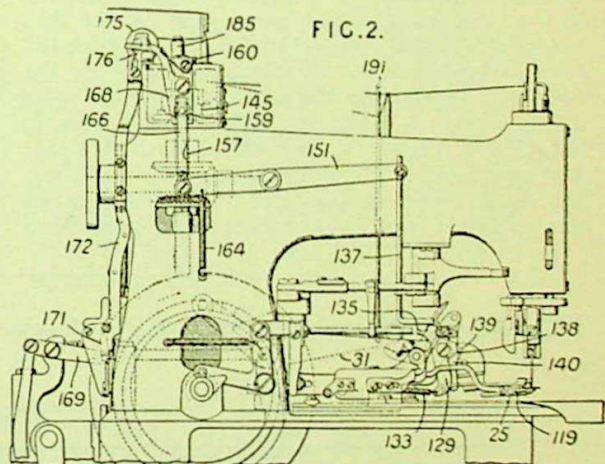
other by a screwed plug 6 carrying a tool-head 7. Within the head is a split sleeve-chuck 8 comprising a solid base 9 and a bored out tool-receiving end 10 which wedges in the tapered end of the head when the latter is screwed home.

223,124. Fairweather, W., (Singer Manufacturing Co.). Feb. 27, 1924.



Button-hole sewing-machines; thread-cutters and thread-end holders.—A button-hole machine is provided with a thread-cutter which is moved in a path transverse to the lead of the thread from the work so that a pointed blade grazes the surface of the work. The threads cut include the needle-thread, looper-thread, and stay cord. Means are also provided for cutting and nipping the needle thread, for removing the severed portion of needle loop and for pulling off looper-thread at the completion of stitching so that it will not be under strain when severed. The thread-cutter comprises a ledger-blade 51 fixed to a movable blade 52 pivoted on a carrier 54 which is carried by a lever 58, Fig. 6, pivoted in the turret casing 60. The lever 58 is connected adjustably to a bell-crank, an arm 73 of which is linked to the button-hole cutter-lever fulcrum-pin so that when the cutter-levers are advanced the lever 58 is rocked and the thread-cutters advanced to the thread-severing position. As this occurs a pin 74 on the blade 52 is moved by a cam-slot 75, in which it rides, to close the blades. The work-supporting plate is formed with the transverse slot 24^b to accommodate the cutter blades. The needle-loop removing means comprises a gripper having jaws 78, 79 pressed together by a spring 84, the jaw 78 being secured to the carrier 54. The jaw 79 has an extension 85 adapted to be engaged by a latch 86 to hold the jaws open. The latch is mounted on a fulcrum-pin 87 having a lever thereon adapted to be engaged by a pin 90 on the lower cutter-lever 43 to release the latch. The lever of the jaw 79 also carries an extension 91, which on retraction strikes a stop 92 and opens the jaws to release the severed loop. Means are provided for nipping the stay-cord during the initial stitches of a group. The cord passes through a guide 96, Fig. 22, between a nipper-jaw 98 and the framing and thence through guides, including a check-spring on the needle-throat. The jaw 98 is carried by a lever 100 actuated by a face cam 104, formed on a disc 105 mounted on the rapid feed-shaft 23, so timed that the cord is gripped during initial stitches and then released.

Needle-thread nipper. A nipper is provided above the work together with an auxiliary cutter



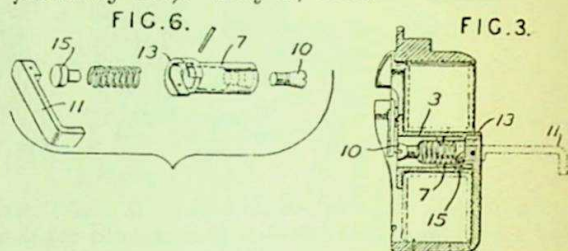
for reducing the length of needle-thread required to be absorbed during the formation of initial stitches and comprises the usual compound blade 119 pivotally mounted on the clamping-foot 25 or formed so as to nip and cut the thread. The blade is linked to a plate 129 stressed by a spring 133 to move the needle blade to nipping position. The plate 129 has an arm 135, Fig. 2, lying in the path of the nipper-opening rod 137. The plate 129 also carries a tooth 138 which can engage a tooth 139 of a latch-plate 140 which is moved to release the plate 129 when the cutter-levers are moved forward at the end of an operation. The rod 137 is pivoted to a lever 151 connected to a link 157 pivoted to a slide-plate 160. A spring 164 restores the slide-plate to lower position and the rod 137 to elevated position. The movements of the slide-plate and therefore of the nipper are controlled by a timing-cam 145 driven by a two-to-one gear from the needle-bar shaft, Figs. 2 and 27. A boss 159 on the slide plate receives a sliding pin 165 grooved at 167 and pressed toward the cam by a leaf spring 166. The pin

is held during most of the sewing operation out of contact with the cam by a latch-lever 168. When the stop-motion lever shifts at the close of an operation a lever 169 is rocked to engage a latch 171 and lift a tension-release bar 172 which by means of a pin 176 engages the latch-lever 168 and releases the pin 165 to engage the then stationary cam 145. On starting the machine a cam rise on the lower ledge 179 of the cam raises the pin 165 on to a ledge 180 and takes up lost motion in the connections to the lever plate 129. A further rise 181 causes the lever 129 to rock and opens the thread-nipper. On the further movement of the cam a cam projection 183 presses back the pin 165 so that it is latched by the lever 168. The ledge 182 then rides from beneath the pin and allows it to drop to the bottom ledge 179 where it rides idly.

Threads, controlling otherwise than in stitch-forming; thread-tensioning devices.—The needle-thread passes from the supply through a light thread-check 185, between the tension-discs 175 and through guides beneath a pull-off bar 191 and thence to the hollow needle-bar. The pull-off bar 191 is connected to the clamp-closing lever 31 and operates prior to sewing to pull enough thread through the then open tension to allow the first stroke to be made without strain. The check 185 which is provided to control the thread while the tension is open comprises a spring-pressed disc 197 housed in a cylindrical body 195 and pressing the thread against a disc 198 carried by a pin 199 apertured at 201 to guide the thread between the discs. The looper-thread pull-off comprises a lever 108, Fig. 6, engaging the looper-thread and

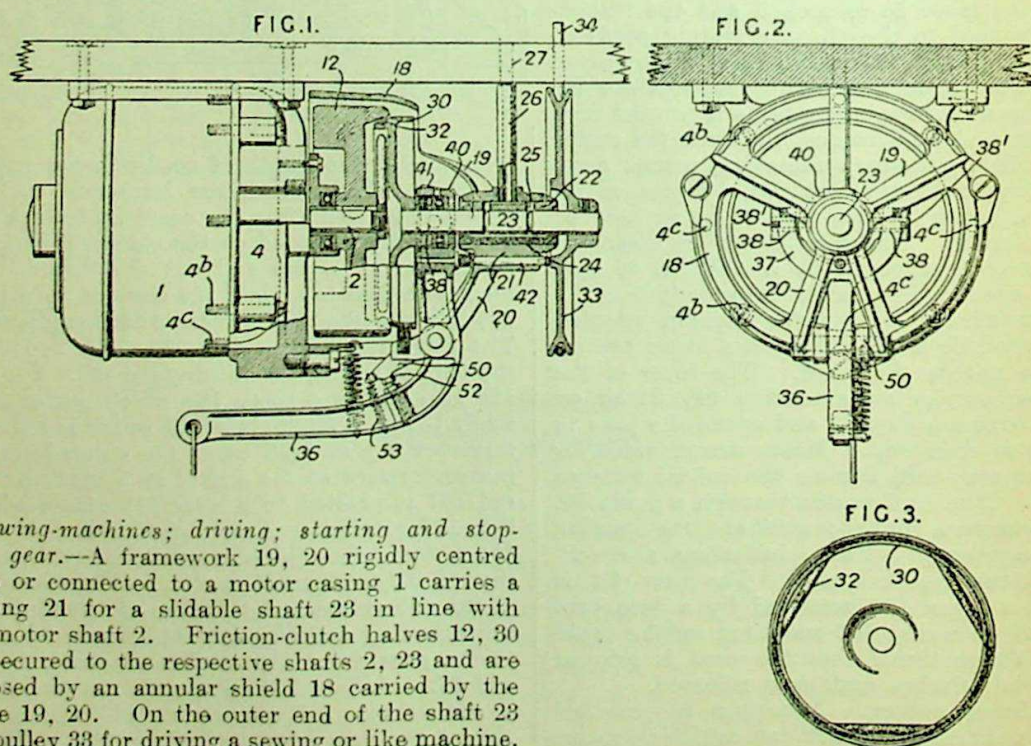
connected to a link 112 the grooved end of which is embraced by the forked end of a lever 114 actuated by a cam on the disc 105 so timed that a complete oscillation from full to dotted lines and back, Fig. 6, is given when the sewing operation is completed. Specifications 142,561, 179,278, 183,873, 184,134, and 184,135 are referred to.

223,162. Fairweather, W., (Singer Manufacturing Co.). May 2, 1924.



Sewing-machines; lock-stitching.—A bobbin-case is formed with a central tubular arbor open at both ends and receiving a removable shank which carries the bobbin-securing latch. The latch 11 is pivoted in an enlarged head 13 of the tubular shank 7 and is held in open or closed position by a spring-pressed stud 15. The end of the shank 7 remote from the latch is split and receives a screw having a tapered head 10 for the purpose of clamping the shank within the arbor 3. Specification 233,812 is referred to.

223,420. Fairweather, W., (Singer Manufacturing Co.). Nov. 16, 1923.

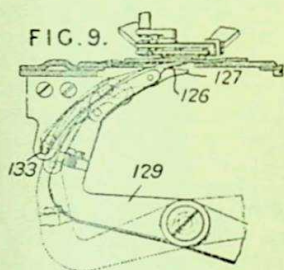


Sewing-machines; driving; starting and stopping gear.—A framework 19, 20 rigidly centred upon or connected to a motor casing 1 carries a bearing 21 for a slidable shaft 23 in line with the motor shaft 2. Friction-clutch halves 12, 30 are secured to the respective shafts 2, 23 and are enclosed by an annular shield 18 carried by the frame 19, 20. On the outer end of the shaft 23 is a pulley 33 for driving a sewing or like machine.

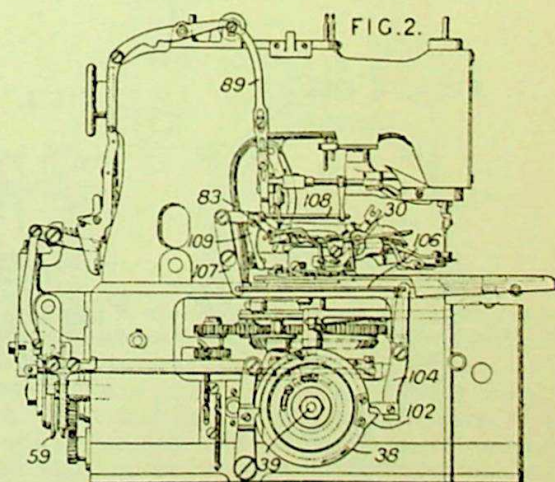
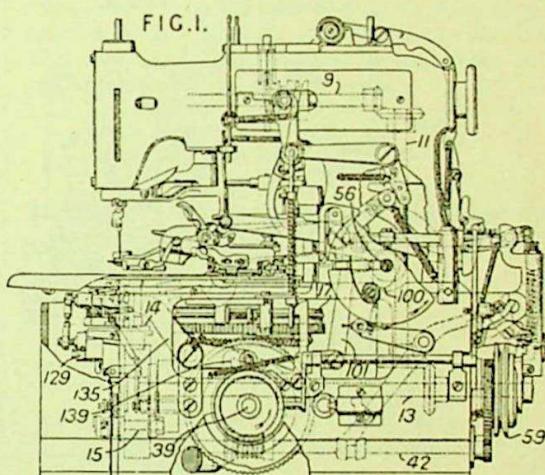
Treadle-operated clutch and brake levers 36, 50 are pivoted between the frame-arms 20 and are held in adjustable contact at 52 by a spring 53 to allow for wear. Spaced arms 37 on the lever 36 carry pins 38 which take into over-size holes in a thimble 40 surrounding a thrust-bearing 41 adjacent the member 30. A slide-rod 42, journaled in the bearing casing 21 and spring-pressed against the lever 36, acts on the pulley 33 to separate positively the clutch-parts when the treadle is released. The clutch-part 30 is grooved to receive a friction-band 32 which is

arranged to give three-point contact as shown in Fig. 3. The device is shown fixed to a flat table, but to allow of it being used with a trough-top table, the motor-casing 1 is provided with two sets of bolt-holes 4^b, 4^c for attaching the end-cover 4 so that the lever 36 always oscillates in a vertical plane. The bearing 21 contains a bushing 22 having an absorbent insert 24 which is supplied with oil through passages 27 - - 25. The pins 38 are hollow and are filled with grease which may be forced into the bearing 41 by screwing in plugs 38¹.

223,801. Fairweather, W., (Singer Manufacturing Co.). Feb. 27, 1924.



Button-hole sewing-machines; starting and stopping gear. — A machine of the general type described in Specification 15049/15 is provided with thread-cutting mechanism by which the upper thread is cut in the stitching position and the work-holder is then moved rearwardly to a position in which the lower thread-cutting mechanism comes into action to sever the drawn out length of looper thread. In the machine described the needle-bar operating shaft 9 and looper-operating shaft 15 are geared to a main shaft 13 to be driven at double its speed. The needle-bar and a turret 14 are turned by usual connections with a feed-wheel 17. The work-plate and holder are of usual construction, the longitudinal movement of the work-clamp being derived from the feed-wheel 17 and the lateral movement from a wheel 38 on the rapid-feed shaft 39 geared to the wheel 17. The shaft 39 and wheel 17 are driven at slow speed during sewing by the vertical shaft 11, driving the needle-bar shaft, and during rapid feed are automatically geared to a shaft 42. The connection and disconnection of the shafts 39, 42 are effected by continuously-reciprocating levers which are held in inoperative positions by latches, the throw-out latch being operated by cams on the wheel 38 and the throw-in latch by a cam on the cutter-shaft 56 and by the stop-motion mechanism, which controls the connection of the sewing-shaft 13 with the continuously moving pulley 59. The cutting mechanism is operated in known manner by means including a device for coupling the shaft 56 to a continuously-running pulley which also operates the clamp mechanism. The period of stitch-forming is controlled by usual means operated by the controlling wheel 38. After the button-hole has been cut a cam 100, Fig. 1, on the button-hole cutter shaft engages a T-shaped



lever 101 and moves it to operate the clamp-spreading device. Just before the machine comes to rest a tooth 102, Fig. 2, on the control wheel 38 engages the end of a lever 104 connected by a linkage 106, 107 to a push-rod 108 carrying an arm 109. The push-rod engages the arm 30 of the work-clamp to open it and at the same time the arm 109 engages the clamp-spreading toggle to unspread it.

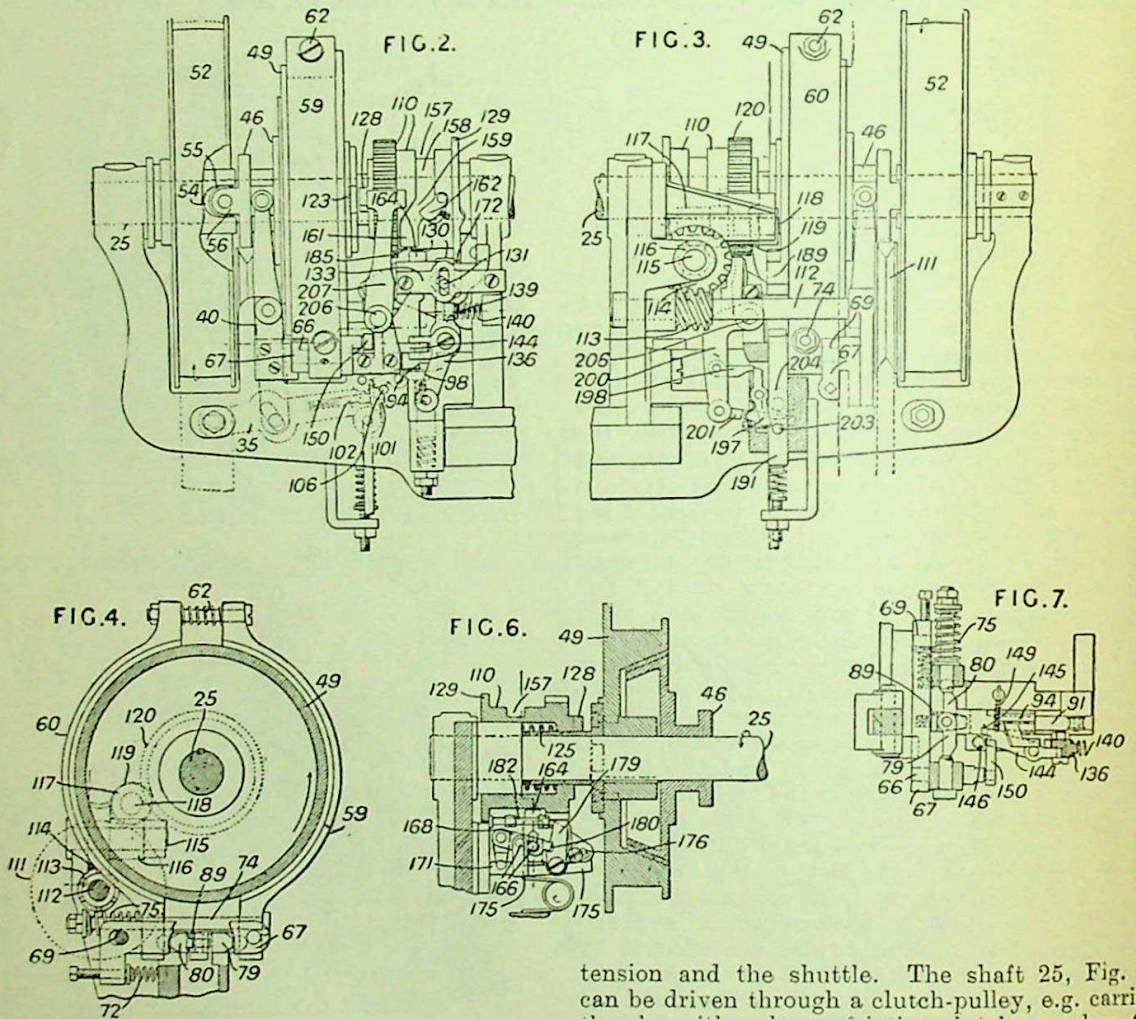
Thread-cutters and thread-end holders. — The upper-thread cutter and nipper is of the type described in Specification 142,561 and comprises

a spring-stressed rod which is released by a latch 83. The latch is tripped at the end of a sewing cycle, and before the work holder is shifted from sewing position, by means of a vertical bar 89 connected to the upper-thread tension-release lever which in turn is operated in usual manner from the stop-motion device. The rapid feed is at the same time tripped into action and withdraws the work-clamp, drawing out suitable lengths of under-thread and cord for the next

button-hole. A scissors device 126, 127 is then projected below the work and closed by the action of a cam-slot 133. This device is similar to that described in Specification 223,124 but is simpler and actuated independently of the button-hole cutter. The cutter-lever 129 is connected by a link to a lever 135 actuated by a cam groove 139 on the rapid-feed shaft 39. Specifications 126,119, 179,278, 183,873, 184,134, 184,135, 197,463, 197,629, and 198,628 are referred to.

223,853. Reece Shoe Machinery Co.,
[Convention date].

(Assignees of Oliver, J. R.). Oct. 23, 1923,



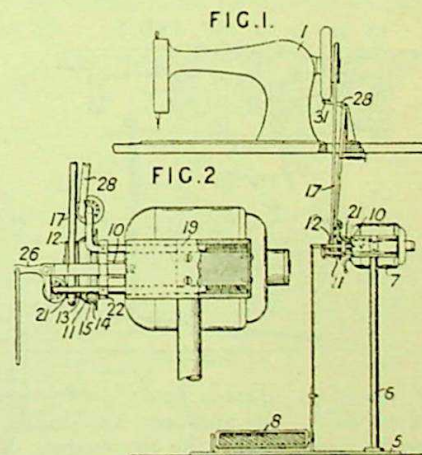
Sewing-machines; starting and stopping gear.—Stop-mechanism for stitching and other power-driven machines comprises a friction device or equivalent means to bring the machine to a first stop without shock in an indeterminate position, and supplemental means automatically set in motion by such stoppage for turning the parts to a predetermined final position. The device is described in regard to an outsole-stitching machine which is to be brought to rest with the needle fully retracted and with the thread free of the

tension and the shuttle. The shaft 25, Fig. 2, can be driven through a clutch-pulley, e.g. carried thereby either by a friction-clutch member 46, Fig. 6, connected for rotary movement to a loose pulley 52 driven at normal speed from the power shaft, or by a dog-clutch 128, 123, Fig. 2, from a cam-pulley 110 loose on the shaft and driven through reduction gearing 111 - 120, Fig. 3, from the power-shaft. The member 46 is driven from the pulley 52 by means of rollers 55 carried by projections 56 and engaging slots 54 in the hub of the pulley. The clutch-pulley 49 is embraced by brake-members 59, 60, which are held together by bolts 62, 74, Fig. 4, and through which braking force is applied by a spring 75 when

a toggle 79, 80 between the members 59, 60 is broken. The brake is supported by a bar 67 pivoted to the member 59 and having slotted engagement with a frame-pin 69 which allows it to be dragged around when in action against an adjustable spring 72. The main clutch is actuated through a lever 40, Fig. 2, which has slotted connection with a treadle-actuated lever 35. The lever 35 carries a spring-pressed slide 102, 101, which, when the treadle is released to stop the machine, first trips a latch 98 to release a lug 94 on a spring-pressed toggle-actuating slide 91, Fig. 7, a lug 89 on which thereupon breaks the toggle to apply the brake. The member 101 is then forced rearwardly by a pin 106 so that it releases the latch 98. The pulley 110 is normally held out of action against a spring 125, Fig. 6, by a vertical slide-member 130, Fig. 2, which carries a pin 131 engaging in inclined and vertical slots in a lever 136 and a frame-member 133. To the lever 136 is universally jointed a trigger 144 which normally rests under the influence of a spring 149, Fig. 7, with its nose 145 against a frame-pin 146 so that the lever 136 holds the member 130 raised in opposition to a spring 140. The pivot pin 66 of the brake-bar 67 carries a finger 150, Figs. 2 and 7, which engages the trigger 144. When the machine reaches its first stop, the brake-device reacts under the influence of the spring 72, Fig. 4, so that the bar 67 moves the finger 150 towards the trigger 144 which is shifted from the pin 146 and allows the lever 136, Fig. 2, to lower the stop 130. During this movement of the trigger 144 it cams the finger 150 on to its top surface and the lever 136 contacts with an extension of the toggle-slide 91, Fig. 7, to straighten the toggle and release the brake. The latch 98 then snaps back behind the lug 94. The member 110 is now spring-pressed to the left, Fig. 2, to engage the slow-motion clutch. The de-clutching of the slow-motion device is controlled by a cam-groove 157 in the member 110, which engages with a follower 164 normally held down. A pin 166 on the follower which is journaled in the frame engages a slotted lever 168 which is linked at one end to a downwardly movable slide 171 and engages at its other end with a notched spring-pressed lever 179 and is also pivoted to a lever 175 which is pivoted at 176 and spring-pressed upwards. When the member 110 is moved to the left it acts through a pin 182 to free the lever 168 which is pressed upwards with the follower 164. The follower enters the idle portion 158 of the groove 157, Fig. 2, and when it reaches the portion 159 it shifts the member 110 to declutch the slow-speed device. Undue wear is prevented by a spring-pressed latch 162 in the groove. This shift of the member 110 acts through a lever 207, Fig. 2, to rock a shaft 206 on an arm 200, Fig. 3, of which carries triggers 198, 201. The periphery of the pulley 49 carries a notched impact-member 189, Fig. 3, with which co-operates an adjustable spring-pressed slide-bar 191 which is normally held down by a latch 197. When the shaft 206 is rocked, the trigger 198 trips the latch 197 and the bar 191 immediately enters the notch in the member 189 to stop the machine in an exact predetermined position. Further movement of the

lever 200 cams down the bar 191 by the interaction of a pin 203 thereon, the trigger 201 and a roller 204, and the lateral shift of the member 110 acts upon an arm 139 of the lever 136 so that it moves against the spring 140, allows the latch 144 to assume the set position and throws up the guard 130. The throw of the cam is such that a stop arm 172, Fig. 2, carried by the slide-member 171, Fig. 6, snaps up behind the flange 129 of the member 110 to hold it in such a position that as the follower 164 is forced out of the groove by the incline 161, Fig. 2, it is central in the groove so as to avoid wear. As the follower leaves the groove, a pin 185, Fig. 2, still further depresses it so that it rocks the lever 168 about the lever 179, Fig. 6, and depresses the slide 171, the arm 172 thereof being withdrawn from the flange 129, which engages with the stop 130. The worm-wheel 114 is provided with a spring-held pivoted latch engaging a notch in the shaft 115. This acts as a safety-device in case both drives are accidentally in gear at once.

223,917. Maimin Speed Control Corporation, (Assignees of Maimin, H.). Oct. 26, 1923, [Convention date].

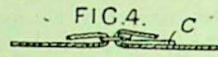


Sewing-machines; starting and stopping gear.—Means for controlling the motor drive of a sewing-machine so as to permit of very low speed comprises a coned pulley in contact with which a belt is held by a belt-fork under control of an operator to vary the speed by varying the amount of slip. In the arrangement shown, a unit consisting of a base 5 supporting a control-treadle 8 and a standard 6 carrying a motor 7 is arranged in association with a sewing machine 1. The spindle 10 of the motor carries a loose pulley 12 and a coned fast pulley 11 affording a slight shoulder 13 and having an annular part 14 with a groove 15. A belt-fork is mounted on the motor casing and comprises roller-carrying rods 21 guided in spring-containing pockets 19 and connected by a cross-bar 22. The belt-fork is moved against the action of the springs, to shift the belt 17 from the pulley 12 to the pulley 11, by means of a lever 26 connected to the treadle.

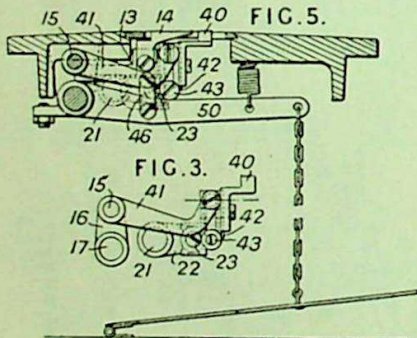
The machine is started at very low speed by the slipping engagement of the belt with the shoulder 13, the slip decreasing as the belt is moved across the conical part of the pulley. A brake 31 is operated by the engagement of the upper rod 21 with a long lever 28.

224,031. Page, A. Sept. 3, 1923.

Seams.—The seams of those parts of garments which are cut on the cross are reinforced by a piece of tape C or other unextensible material which is lightly tacked along the back of the cloth as shown in Fig. 2. The tape is subsequently sewn to the cloth and the seam opened out and pressed as shown in Fig. 4.



224,064. Armstrong, J. J. V., (Union Special Machine Co.). Oct. 13, 1923.



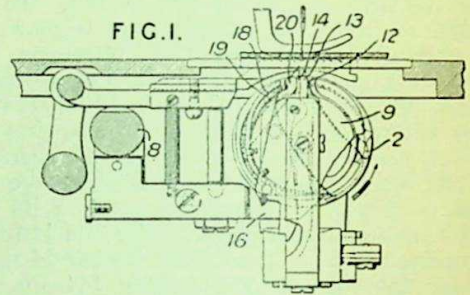
Sewing-machines; duplex feed; feed, regulating; feed by dogs.—An auxiliary feed-dog is connected to be operated by the movements of the main feed-dog in such a manner that the extent of the feed may be varied by manual displacement of a part without stopping the machine. The main dog 14 on the arm 13 is given feed movements by an arm 16, mounted on a rocking-shaft 17 and pivoted at 15 to the arm 13. Vertical movements are given by an arm 22 on a rocking shaft 21 engaging a block 23 beneath the arm 13. The auxiliary dog 40 is mounted on a bar 42 pivoted at 43 to the block 23 and having a slideway for a block connected by a link 41 to the pivot 15 of the arm 13. A spring-sustained arm 50 operated by a treadle is connected to the link 41 by a link 46 and may be actuated to vary the throw of the dog 40 by adjusting the position of the block in its slide.

224,094. Percivall, E. Nov. 14, 1923.



Bodkins.—A bodkin for use in inserting tape in starched goods &c. consists of a piece of wood, metal &c. of relatively large circular cross-section and tapering downward from the forward end to the rear end in which the eye is pierced.

224,162. Fairweather, W., (Singer Manufacturing Co.). May 2, 1924.



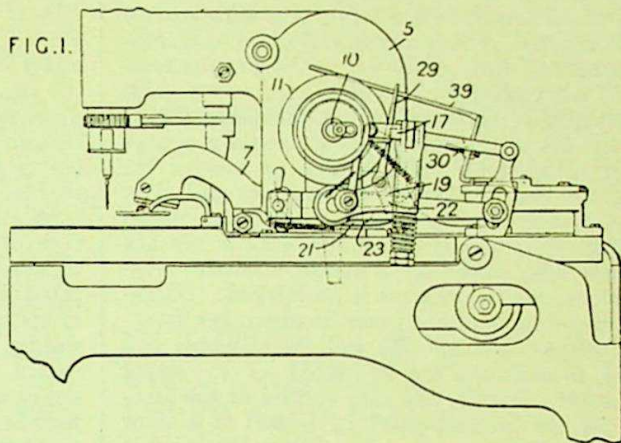
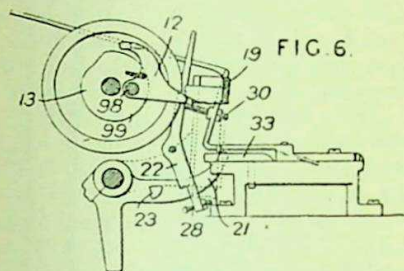
Sewing-machines; lock-stitching.—A yielding thread-nipper or tension is provided in association with a stationary bobbin-thread case to engage the needle-thread below the work and allow it to be drawn up with a snap thus avoiding twisting of the thread-loop. The bobbin-case is partly supported on a hanger-disc 9, surrounded by a rotary hook 2 and is held against rotation by a tongue 13 having a movable jaw 14 and engaging a gate 12. A mechanical lifter 16 is also provided, actuated by the feed rock-shaft 8 to lift the bobbin-case clear of the hanger disc. A leaf-spring 18 and guard 19 are secured to the hanger disc, the spring bearing lightly on a loop-detaining horn 20 between which and the spring the thread-loop passes and is held until reduced to the smallest possible size when it is drawn up with a jerk by the take-up. The spring also serves to cushion the upward blow of the bobbin caused by the lifter. Specification 233,812 is referred to.

224,469. Imrie, H., (Reece Button Hole Machine Co.). May 21, 1924.

Button-hole sewing-machines of the kind in which the stitch-forming mechanism is rotated at one end of the button-hole to form an eye, are provided with means for interrupting the stitching at will during the rotation so as to produce a straight button-hole. In the construction shown, a frame 5 supporting the stitch-forming means is moved to and fro on the bed-plate. The stitching devices are rotated about a vertical axis by a shaft 7. The driving shaft 10 for the stitching

device is driven by a pulley 11 clutched thereto by a clutch of known type comprising a spring dog 12 pivoted at 98 to a hub 99 fast on the shaft and engaging a cam 13 on the pulley 11. The clutch is disengaged by a head 17 carried by a rocking member 19 held in inoperative position during stitching by a latch 22 engaging a

projection 23. At the conclusion of a cycle a screw 28 carried by the latch 22 engages a fixed stop and releases the rocking member 21 to stop the shaft 10. In order to stop the shaft when desired while the mechanism is rotating about the end of a button-hole, the latch 22 is provided with a tail 29 adapted to engage an abutment 30

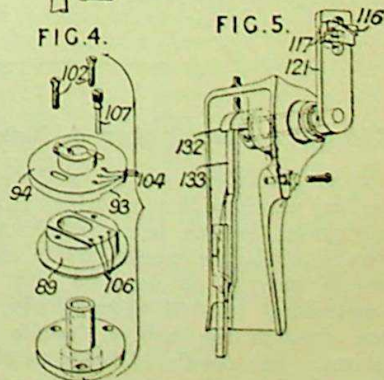
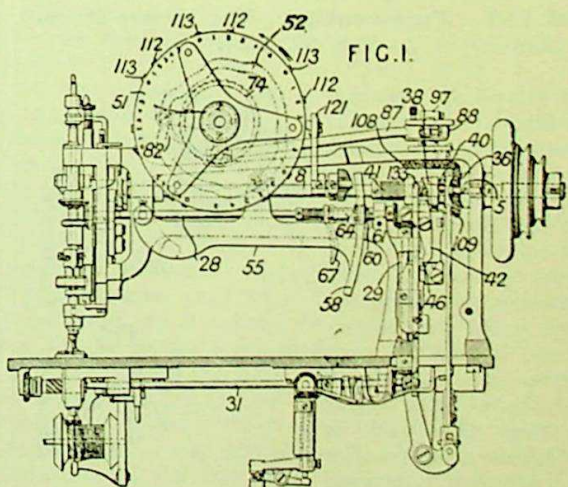


as the frame 5 reaches the end of its traverse. After the stitch-forming devices have made their half-rotation, the shaft 10 is again clutched to the driving pulley by the operation of means comprising a latch 33 which snaps over the end of the arm 21 of the rocking member 19 and, as the frame is retracted, turns the rocking member into

a position to be re-engaged by the latch 22. In order to provide for the sewing of an ordinary eyelet-ended button-hole when desired, the abutment 30 is mounted on a pivoted arm 33 which may be swung aside by movement of a finger-piece 39.

224,527. Singer Manufacturing Co.,
(Assignees of Myers, W.). Nov. 5, 1923, [Convention date].

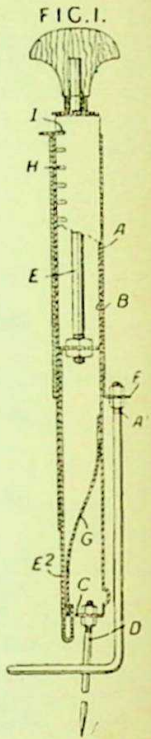
Universal-feed machines.—The feed-direction is controlled by a continuously rotating pattern cam, and the pattern is varied by stopping the stitching and feeding during selected portions of the feed direction cycle. The stitching and feeding mechanisms are described in Specification 152,092, and are provided with a usual stopping device, which includes a cam 38 pressed to the right on the shaft 8 by a spring 41 so as to carry a pin 40 riding in a hole in an eccentric 36 fast on the shaft 8 into a hole in the gear wheel 109 fast on the pulley shaft 5. The cam causes a lever 42 to oscillate during stitching, and when that oscillation is prevented by a block 46, which can be raised into the path of the end of the lever 42, the cam is forced to the left and the stitching and feeding shaft 8 is uncoupled from the pulley shaft. The feed-direction cam disc 51 is rotated by a ratchet-pawl 82, pitman 87 and an eccentric 88 on a continuously rotating shaft 97 geared to the pulley shaft by bevel-wheels 108, 109. The cam-groove 52 is entered by a roller on a pivoted plate 55 formed with a toothed rack 58 by which the feed-direction shafts 28, 29 and 31 are controlled. The size of the pattern is changed by altering the eccentricity of the eccentric 88 and so varying the throw of the ratchet pawl. The eccentric comprises a disc 94, Fig. 4, fixed on the shaft 97 and a bush 89 slidingly mounted in a groove 93 on the disc. The parts



are secured together by screws 102 and the bush can be moved in the groove to enable a positioning pin 107 to pass through one of the holes 104 in the disc into one of the holes 106 in the bush. Interchangeable ratchet wheels 74 with tooth pitches corresponding to the three throws of the eccentric may be provided. The character of the pattern can be varied by cutting out parts of the complete pattern provided for by the cam-groove. This is effected by stopping the stitching and feeding operations during selected portions of the rotation of the cam disc. To this end, screws 112, 113 are placed in two lines on the periphery of the cam disc and their heads alternately engage sloping surfaces 116, 117, Fig. 5, on a lever 121 and move that lever first to one side and then to the other. One movement of the lever causes a toe 132 to rise out of contact with a bar 133 which is then raised by a spring with the stopping block and the shaft 8 is declutched. Subsequent movement of the lever in the other direction depresses the rod 133 and the stitching and feeding mechanism are re-started. For turning corners for example, the cam control of the feed-direction can be suspended by means of a lever 67 carrying an eccentric pin. When the lever is turned, a sleeve 64 integral with the pinion which engages the rack 58 is moved on the shaft 28 against a spring, and its clutching surface 60 is separated from a similar surface on the collar 61 on the shaft 28.

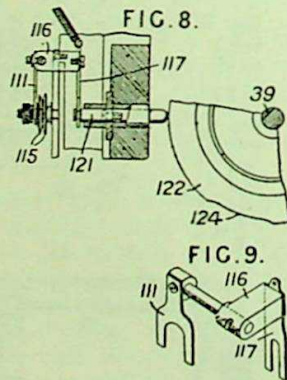
224,721. Dredge, E. July 29, 1924.

Hand sewing-tools.—A rug-making tool comprises a frame 9 of square cross-section having a lug F to which are fixed the legs of a presser-foot A¹. A channel-sectioned member B slides in the frame A and has a top lug through which passes a manually-operated rod E and a bottom lug C to which is locked the screw-threaded end of a needle D. The member B carries a thread-locking member G which co-operates with the thread-carrying hooked end of a bracket E². A gauge which slides within the frame has inwardly and outwardly turned lugs I which co-operate respectively with recesses H in the member B and with the top of the frame so as to regulate the depth of pile formed.



224,845. Fairweather, W., (Singer Manufacturing Co.). Feb. 27, 1924.

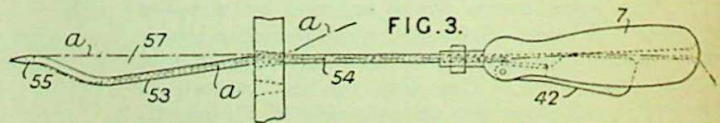
Button-hole sewing-machines; threads, controlling, otherwise than in stitch-forming.—A machine for making fly-barred button-holes is provided with means for automatically increasing the tension of the under-thread during the sewing of the over-lying stitches of the fly-bar so that the purl is pulled over to the edge of the fly-bar to conceal



the needle punctures. The stitch-forming mechanism is of the type described in Specifications 15049/15 and 126,119, and comprises a straight needle co-operating with a curved needle and looper. The means for varying the under-thread tension comprises a fork 111 adapted to press on one of the discs of the tension device 115 and mounted on a rock-shaft carrying an arm 116 to which is attached a spring-stressed plate 117 forked at its lower end to embrace the neck of a pin 121. The pin is slidably mounted and bears on a cam 122 on the rapid-feed shaft 39. This cam is mainly circular, but has a recessed part 124 which allows the pin to move inwards so that the pressure on the disc 115 is increased. The work-clamp, work-holder, rapid-feed device and upper thread tension described are of known construction. Specification 179,278 also is referred to.

225,017. Neuhafer & Levi, Ltd., M., (Marogg, R.). Oct. 13, 1923.

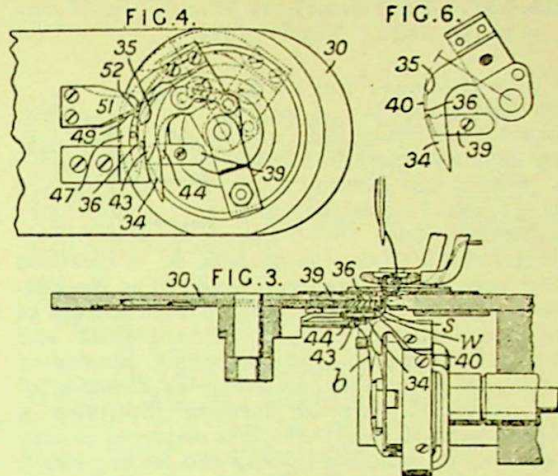
Sewing-needles.—In a brush-making machine for securing tufts of bristles in the brush stock by wire stitching, a needle 53 is employed having an eye 55 and a longitudinal bore 54 through which, and through the hollow handle 7, the wire *a* passes. The needle is bent, as shown, so as to form the loop 57 for embracing a tuft of bristles.



A lever 42 is provided in the handle to grip the wire *a* when the tuft is being drawn into a hole in the brush stock.

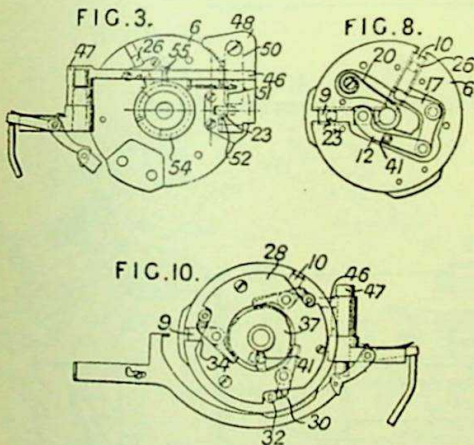
225,371. Fairweather, W., (Singer Manufacturing Co.). Nov. 21, 1923.

Sewing-machines; thread-cutters and thread-end holders.—A needle-loop detaining blade 34 pivoted below the throat plate is provided with a projection 35 having a cutting-edge 36 for both needle and bobbin-threads set inwards from the outer edge 40 of the blade and coacting with a ledger-blade 39 mounted inwardly from the cutting edge, the purpose being to avoid accidental severing of the supply limbs *s* of the needle-loop. The thread-nippers for the bobbin-thread *b* comprises a pair of fingers 43, 44 spaced slightly below the blade 34 and having divergent tips between which the thread is guided. A thread-gripper 47 of usual hooked form is provided to engage the needle-thread *w* and nip it against the underside of the throat-plate 30, at the same time cutting off any excess of needle-thread against a sharpened ledge-blade 49. An additional blade 51 having a thread-guiding point 52 is secured above the blade 49, the combination serving instead of a single sharpened blade with a V-notch. The mecha-



nism is described in connection with a machine of the kind set forth in Specification 206,710 for producing groups of stitches and in which the needle-loop is given a half twist.

225,431. Fairweather, W., (Singer Manufacturing Co.). Feb. 27, 1924.



Buttonhole sewing-machines; starting and stopping gear.—Clutches of the friction roller type are operated by roller-engaging levers moved by a cam rotated by the movement of radially sliding blocks striking successively against a relatively stationary main clutch-operating lever. The clutch is used to rotate a driven element for part of a revolution to close the work clamp and trip the stop-motion device starting the stitch-forming mechanism, whereupon the clutch is automatically disengaged and the driven element positively stopped. The stitch stop-motion device, when the stitching is finished, again trips the clutch into engagement to rotate the driven

element for the remainder of the revolution to cut the buttonhole and the sewing-threads, open the work clamp, &c., whereupon the clutch is automatically disengaged and the driven element positively stopped, as before. The driving-pulley (not shown) has a cylindrical rim between which and cam faces 34 on a plate 28 secured to the driven member 6 are spring-pressed ratchet clutch rollers 32. Bearing on the rollers 32 are levers 30 pivoted on the plate 28 and bearing also on a cam plate 37, which is loose on a central shaft and is slotted to engage a roller 41 on a link 12 connecting a block 9 sliding radially in the member 6 with a second sliding block 10 through the medium of a bell crank lever 17. A spring 20 bearing on the block 10 tends to move both blocks radially outwards. Lugs 23, 26 on the blocks project into the path of a block 48 on a clutch-operating and stop lever 46 turning on a pivot 47, a pin 55 in the lever engaging a cam groove 54 in the hub of the driven member 6. The lever 46, when swung manually on its pivot 47 in starting the action, releases the lug 23 in contact therewith so that the blocks 9, 10 move outward and rotate the cam 37 to remove the levers 30 from the clutch rollers 32 and allow them to clutch together the driving-pulley and the member 6. The cam 54 so returns the lever 46 that the lug 26 strikes the cam surface 51 on the block 48 to disengage the clutch and comes to rest against the stop 52, back motion of the member 6 being prevented by a spring-pressed latch 50. The lug 26 is released when the stitch-forming stop motion actuates the lever 46 again, rotation of the member 6 continuing till the lever 46 is returned by the cam 54 and the lug 23 engages the block 48 at the completion of the revolution.

225,467. Fairweather, W., (Singer Manufacturing Co.). May 29, 1924.

Chain-stitching; loop-stitching.—Machines having rotary loopers are provided with loop-deflecting fingers in order to prevent the further twisting of the half-twisted loop discharged from the looper which occurs when the feed is in a direction other than "off" the looper beak. The mechanism is specially suitable for use with loopers of the kind described in Specification 138,024, and employed in machines for attaching buttons or tacking-on price labels, in which the direction of feed is varied. In the machine illustrated a looper 15 driven by a shaft 16 is employed in conjunction with a button-holding and feeding clamp and thread-controlling means of known type. A needle-guide 44 of known type is mounted on a shaft 43 and is moved into guiding position as the looper-beak approaches loop-seizing position. The shaft 43 is actuated by a cam 47 on the shaft 16 engaging an arm 45. An auxiliary loop-spreader 51 is mounted on the outer face of the needle-guide. The loop-deflector comprises a finger 52 mounted on a pin 54 journaled in a bracket 56 secured to a yoke 57 mounted to rock on the shaft 43 and forked to embrace a cam 58

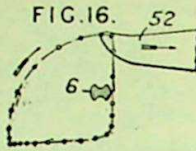


FIG. 4.

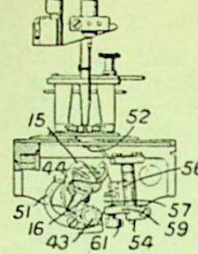


FIG. 2.

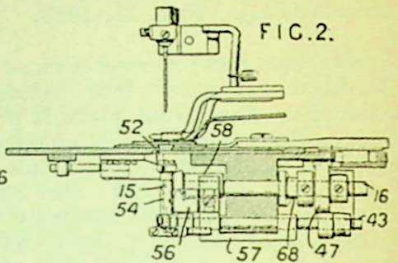


FIG. 5.

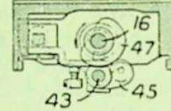
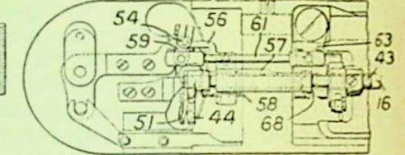


FIG. 3.



on the shaft 16. A link 61 connects an arm 59 on the lower end of the pin 54 to a lever 63 actuated by a cam 68. The cam 68 produces rotation of the finger 52 about the pin 54 and the cam 58 produces endwise movement of the finger. The orbit of the end of the finger 52 relative to the needle 6 is shown in Fig. 16, the positions of the small circles corresponding with rotations through 15° of the looper shaft. Specifications 211,28/12, 1248/15, and 106,814 are referred to.

225,497. Grossmann, H. [Firm of]. Sept. 14, 1923, [Convention date].

Work-guides; presser-bars.—A braid-guide attachment 12 mounted for longitudinal displacement on the bed of a straw-plait sewing-machine has pivoted thereto an upper member 1 which houses a longitudinally-adjustable rack and carrying a separator plate 8 and also a presser-arm 13, the pressure of which is adjustable. The rack 4 gears with and is adjusted by a spindle 5. A fixed pin 10 bears normally against one side of a groove 9 in the spindle 5 under the influence of a spring 11 to prevent accidental movement of the rack 4. The squared spindle 14 of the presser-arm 13 is journaled in a sleeve 16 housed in the member 1 and is held from accidental displacement by a spring 19. The sleeve 16 is held from axial displacement by a screw 21. A collar 22 surrounds the sleeve 16 and is normally held from rotation by the engagement of a spring-pressed pin 29 in a handle 26 thereon with a groove 30 in the part 18 of the member 1. A sleeve-member 31 also surrounds the sleeve 16 and is connected thereto by a spring 33. A spring 38 surrounds the sleeve 16 between an

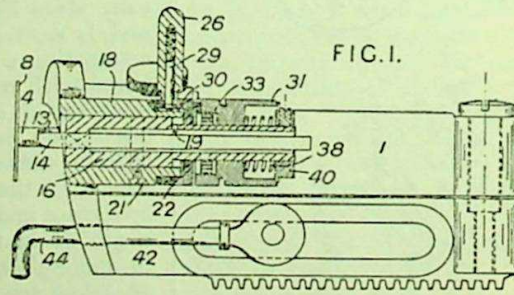


FIG. 1.

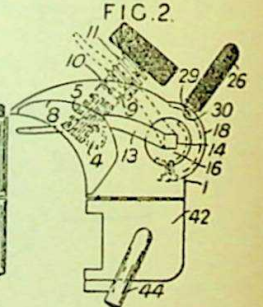
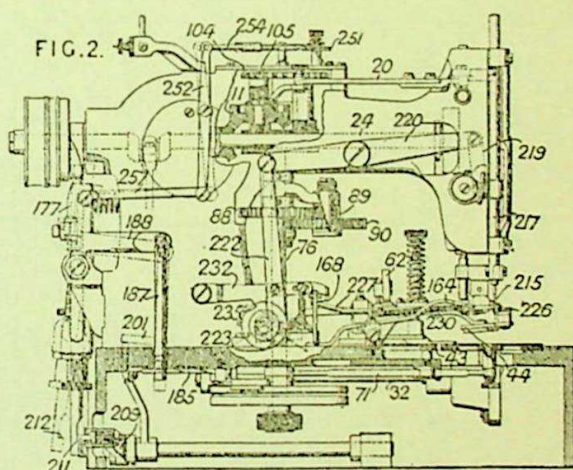
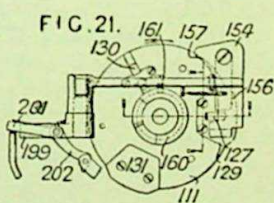
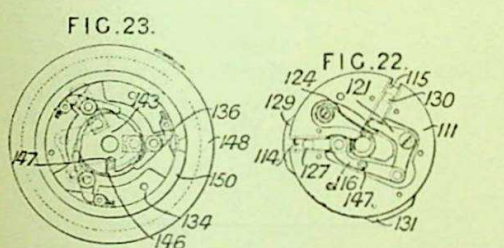
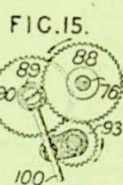
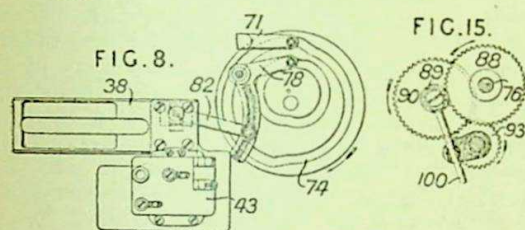
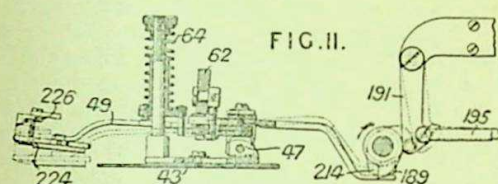
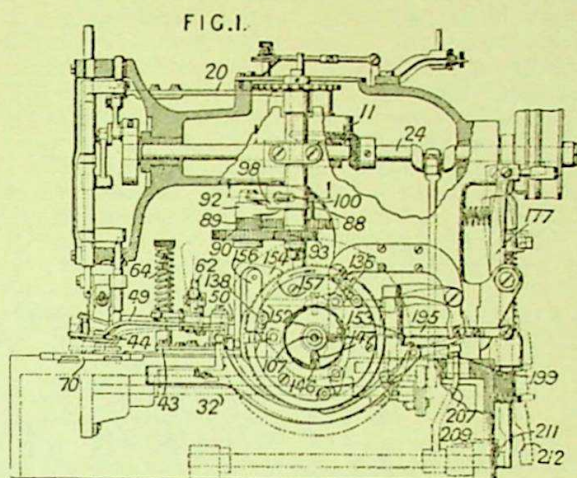
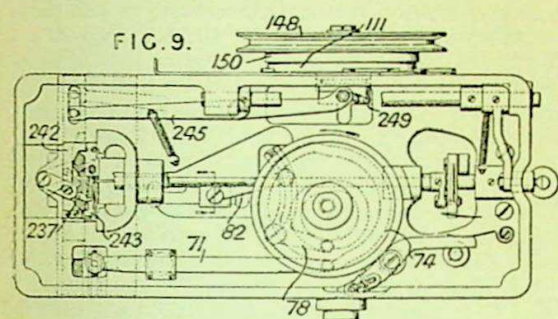


FIG. 2.

adjustable collar 40 on the sleeve and the member 31 which is thus held in toothed engagement with the collar 22. By rotating the collar 22 and with it the member 31 the spring 33 is wound up until it in turn rotates the sleeve 16 and raises the presser-arm 13. The pin 29 holds the parts in raised position and on turning the handle back to normal position the arm again presses on the work with the same pressure. To adjust the pressure, the sleeve 31 is shifted axially against the spring 38 and then turned to adjust its engagement with the collar 22. The arm 44 adjustable in the member 42 holds the work flat against the needle-plate.

225,748. Fairweather, W., (Singer Manufacturing Co.). Feb. 27, 1924.



Buttonhole sewing-machines; starting and stopping gear. — The clamp-closing, slit-cutting and thread-cutting devices are operated by an auxiliary shaft which makes a partial rotation before stitching begins, remains stationary during the stitching, and completes its rotation at the close of the stitching and serves also to throw into and out of operation the stitching mechanism. The mechanism is described in connection with a straight buttonhole machine such as is described in Specification 4417/08. The machine comprises a laterally-vibrating needle-bar deriving its jogging movement from a cam-wheel 11, Fig. 2, and connections including a link 20. The wheel 11 is driven by bevel-gear from the sewing-shaft 24 which drives the needle-bar through usual mechanism. The needle co-operates with a shuttle operated in usual manner by mechanism including a shaft 32. The work-holder comprises a supporting base 43 for the upper clamping-foot 44 adjustably secured to a plate 38. The clamping-foot is car-

ried by a lever 49 pivotally mounted between bars 47 on the base 43 and having associated therewith a rearward extension 50 which may have independent movement or be coupled to the lever 49 by a hand-operated cam-lever 62. The clamp is pressed downwardly by an adjustable spring 64. The plate 38 is mounted to slide longitudinally on a usual type of slide-plate 70 moved transversely by a lever 71 engaging a cam-track 74. The longitudinal movement of the plate 38 is effected through an adjustable lever-and-link connection 78, 82 from the cam-track 71. The feed-shaft 76 carrying the cams is given a step-by-step motion from a star-wheel 104 driven by pins 105 carried by the cam 11 through gearing comprising a pinion 93 carried by the star-wheel shaft and meshing with a pinion 90 rotating with a pinion 89 meshing with a pinion 88 on the shaft 76. The pinions 89, 90 are mounted on a shaft carried by an arm 92 sleeved on the shaft 76 and secured against rotation by a rod 100 projecting from their shaft and locked in a bracket carried by a sleeve 98 on the star-wheel shaft. The gear-ratio is altered by substituting the gears 89, 90. The auxiliary shaft 107 which actuates the clamping and cutting mechanism &c. is caused to perform its two-stage movement by being at in-

tervals clutched to and declutched from a continuously-running belt-driven wheel 148. A clutch-disc 111 on the shaft has a pair of slide-ways set at about 120° apart and receiving slide-blocks 114, 115 which are interconnected by a link 116 and a bell-crank lever 121 stressed by a spring 124. Lugs 127, 130 project from the slide-blocks and are adapted to engage successively a clutch-controlling lever. Cam-plates 129, 131 are let into the disc 111 at the same distance apart as the slide-blocks. A ring 134 on the face of the disc 111 carries three clutch-roll operating levers 136 which are actuated by cams on a disc 143 having a slot 146 therein which receives a roll 147 on the link 116. The movement of the slide-blocks inwardly moves the levers 136 to press back the rolls 138 from engagement with a flange 150 on the pulley 148 and declutch the disc 111. The movement of the slide-blocks are controlled by a clutch-lever 152 of known type pivoted at 153 and having an extension 154 provided with a cam-shape 157 which engages one of the projections 127, 130 when the lever is moved into juxtaposition with the disc 111 to stop the disc. Rebound of the shaft is prevented by a latch 156. The movement of the lever 52 into and out of clutch-releasing position is controlled by the engagement of a pin 161 on the lever with a cam-groove 160, Fig. 21, on the hub of the disc 111, this groove ensuring the return of the lever to clutch-releasing position after it has been displaced to start the shaft 107. The partial rotation of the shaft 107 preparatory to sewing is initiated by the depression of a finger-lever 164 the rear end of which engages a bell-crank lever 168 connected by a link to the lever 152. The starting and stopping of the stitching shaft 24 are controlled by a lever 177 of known type which is held in running position against the action of a spring by a latch-lever 185 engaging a notch in a rod 187 pivoted to an arm 188 of the lever. The lever 177 is automatically tilted to starting position by a cam 189, Fig. 11, on the shaft 107 engaging a roll on a lever 191 connected by a link 195 to the lever 177 which is held by the latch 185 till this is tripped by a lug on the feed-wheel engaging a lug on the catch-lever. The vertical motion of the stopping plunger carried by the lever 177 is utilized to start the shaft 107 after the completion of sewing. When the lever 177 returns to stopping position shown in full lines in Fig. 2, a notch 212 on the plunger engages a latch-pin 211 carried by a lever 209. When the plunger rises into its stop-notch it moves the lever 209, an arm 207 on which engages the arm 201 of a lever carried by an extension 199 of the clutch-lever 152, and rocks the lever 152 to starting position for the second partial rotation of the shaft 207. A second arm 202 of the lever engages the periphery of the disc 111. Means described in the Specification are provided for ensuring the correct operation of the machine and comprise restoring and locking means for the starting finger 164, means for locking the clutch lever 152 and manual means for preventing the second partial rotation of the shaft 107 when desired, as in the event of breakage of the thread. The clamping-foot 44 is automatically controlled by a cam 214 on the shaft 107 which engages the extension 50 in stopping posi-

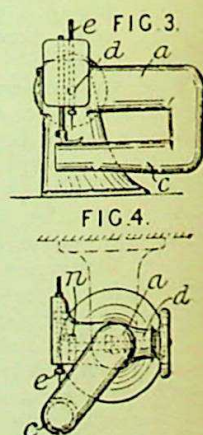
tion and releases it when the machine starts. The clamping-foot may be lowered before the machine is started by the movement of the cam-lever 62 to uncouple the parts 49, 50. A button-hole-cutter 215 which operates after stitching is mounted on a bar 217 connected by link mechanism 219, 220, 222 to a crank 223 set at such a position on the auxiliary shaft 107 that the cutting stroke is given during the second partial rotation.

Thread cutters and thread-end holders.—The needle-thread is cut by a thread-cutting and nipping blade 224 of the kind described in Specification 4417/08 pivoted on the clamping-foot 44 and operated by a crank-arm 226 connected to a rod 227 slidable in a bracket secured to the clamping-lever. The rod is stressed by a spring 230 to effect a cutting stroke. The end of the rod 227 is in proximity to the end of an adjustable lever 232 having a lug 235 which is engaged by a cam on the auxiliary shaft 107. When the work-clamp is moved rearwards during the sewing of the buttonhole the end of the rod 227 engages the end of the lever 232 and the spring is put in tension. At the close of the operation the cam on the shaft 107 lifts the lever 232 and releases the rod which moves under the action of the spring to cut and nip the thread. The shuttle thread is pulled off and severed by a cutter of usual type comprising a pull-off lever 237, Fig. 19, actuated by a slide 242 having a cutting-edge 243. The slide is actuated by a lever 245 the other end of which bears on a cam 249 on the shaft 107.

Threads, controlling otherwise than in stitch-forming.—The discs 251 of the tension device are separated when the machine is idle by a plunger 254 having a wedge-shaped end and actuated by a lever 252 connected by a link 257 to the stop-lever 177. Specifications 18153/03 and 146,587 also are referred to.

225,762. Union-Special-Maschinenfabrik Ges., and Thobroe, C. March 28, 1924.

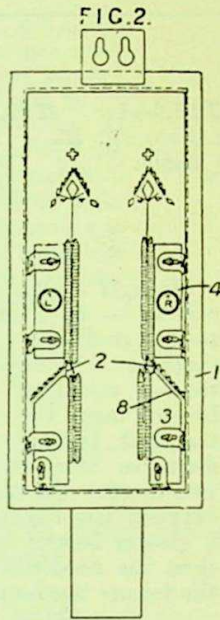
Frames; driving.—A sewing-machine frame comprises an overhanging work-arm *c* connected to a parallel but laterally displaced upper arm *a*, which is T-shaped and carries transversely the main shaft *d*. The main shaft *d* drives the needle-bar *e* which is laterally displaced from the upper arm by a simple crank connection *n*. Various shapes for the arms *a*, *c* are described.



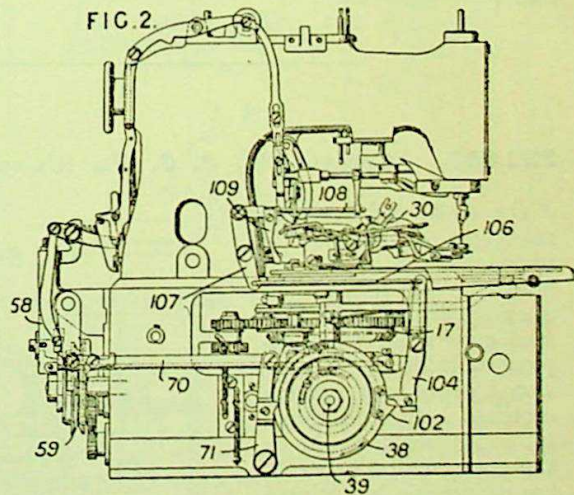
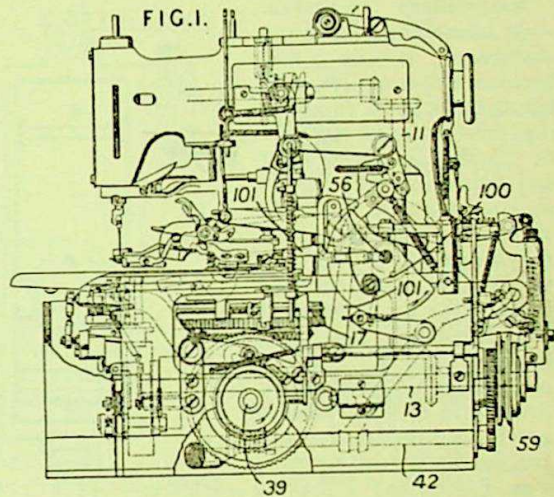
226,122. Rogers, F. H., (*Automatenstrumpf-Stickerei System Lohse Akt.-Ges.*). July 14, 1924.

Embroidery machines.—

A stretching frame for supporting stockings whilst being embroidered with clocks is provided with adjustable supporting plates for accurately positioning the embroidery. A frame 1, provided round its periphery with attachment pins, carries lower and upper plates 3, 4 supported by slotted brackets to allow of adjustment. The plates 3 have pins 2 which engage the apex of the heel angle. The upper edges 8 of the plates 3 are inclined in correspondence with the heel angle. The stocking is attached to the frame with its ribs parallel to the inner edges of the plates 3, 4.



42. The connection and disconnection of the shafts 39, 42 are effected by continuously-reciprocating levers which are held in inoperative position by latches, the throw-out latch being operated by cams on the wheel 38 and the throw-in latch by a cam on the cutter-shaft 56 and by the stop-motion mechanism which controls the connection of the sewing-shaft 13 with the continuously-running pulley 59. The cutting-mechanism is operated in known manner by means including a



226,133. Fairweather, W., (*Singer Manufacturing Co.*). Feb. 27, 1924. *Drawings to Specification.*

Buttonhole sewing-machines.—The descriptive matter of this Specification is substantially the same as that of Specification 225,748 but the claims differ.

226,134. Fairweather, W., (*Singer Manufacturing Co.*). Feb. 27, 1924.

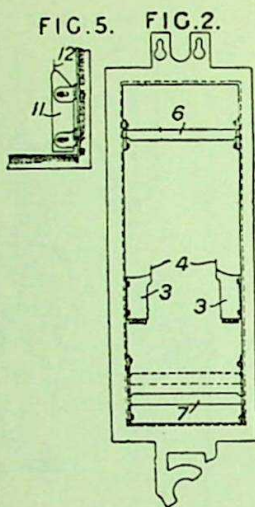
Buttonhole sewing-machines; starting and stopping gear.—A readily accessible controlling-wheel mounted on the rapid-feed shaft is provided with cam means thereon for controlling the period of action of the stitch-forming devices and opening and unspreading the work-clamp. The stitch-forming mechanism is of known type. The needle-bar and the turret are turned by usual connections with a feed-wheel 17. The work-plate and holder are of usual construction, the longitudinal movement of the work-clamp being derived from the feed-wheel 17 and the lateral movement from a wheel 38 on the rapid-feed shaft 39 geared to the wheel 17. The shaft 39 and wheel 17 are driven at slow speed during sewing by the vertical shaft 11 which drives the needle-bar shaft and during rapid feed the shaft 39 is automatically geared to a fast-running shaft

device for coupling the shaft 56 to a continuously-running pulley which also operates the clamp-mechanism. The period of stitch-forming is controlled by the wheel 38 through a rocking-lever 71 having a projection engaging a cam on the wheel 38 and connected by a link 70 to the stop-motion lever 58. In operation, after the buttonhole has been cut, a cam 100, Fig. 1, on the buttonhole cutter-shaft engages a T-shaped lever 101 and moves it to operate the clamp-spreading device. Just before the machine comes to rest a tooth 102, Fig. 2, on the control wheel 38 engages the end of a lever 104 connected by a linkage 106, 107 to a push-rod 108 carrying an arm 109. The push-rod engages an arm 30 of

the work-clamp to open it at the same time. The arm 109 engages the clamp-spreading toggle to unsprad it. Specifications 15049/15 and 126,119 are referred to.

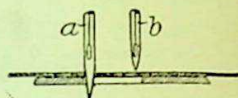
226,451. Rogers, F. H., (*Automaten-Strumpf-Stickerei System Lohse Akt.-Ges.*). July 14, 1924.

Embroidery machines.—A frame for supporting stockings to be embroidered generally over its surface in a machine comprises transverse bars 6, 7 provided with pins and adjustably and removably mounted on the sides of the frame, and adjustably-mounted plates 3 provided with pins 4 for positioning the heel angles of the stocking. Plates 11 having pins 12 may be adjustably mounted at the lower end of the frame to receive a stocking for embroidering it with a clock, the lower bar 7 having first been removed.



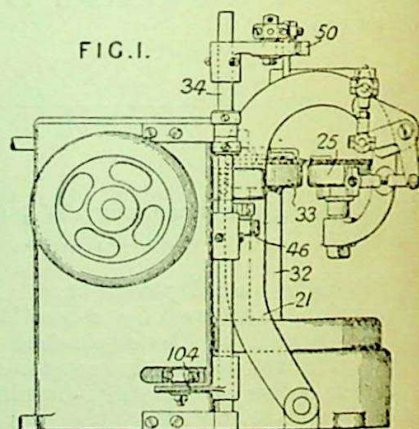
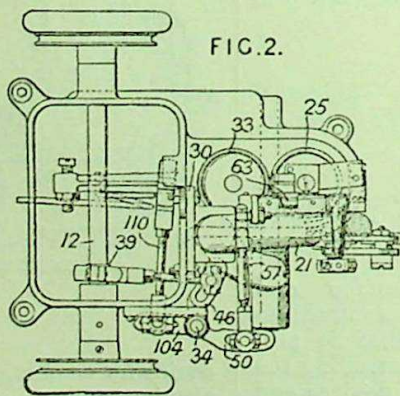
226,484. Graaf, C., and Brase (née Kruger), E. Dec. 18, 1923, [Convention date].

Multiple - needle machines.—In a straight-seam multiple - needle machine having the needles arranged in the line of feed, the feed of the cloth is made greater than the sum of the distances between the needles. In the case of two needles the feed is made double the distance between the needles. The leading needle *a* has a greater length between the eye and the point than the needle *b* so that when turning corners the former needle may remain in the work.



226,636. Armstrong, J. J. V., (*Union Special Machine Co.*). Oct. 17, 1923.

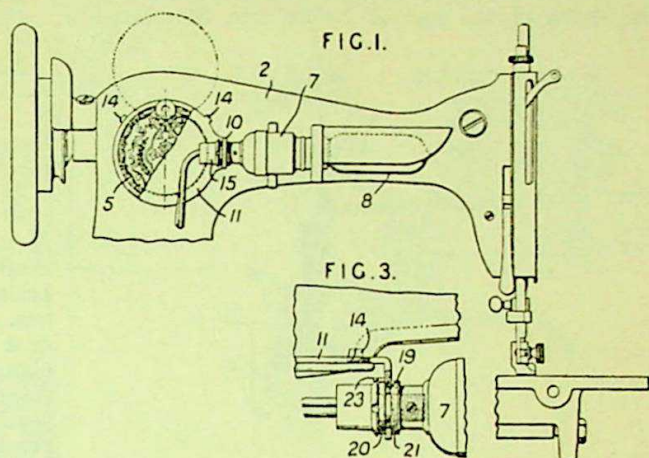
Overhead sewing-machines.—Relates to improvements in the invention described in Specification 197,893. The feed cups are given independent intermittent rotation by one-way friction clutches contained therein. An eccentric 39 on the main shaft 12, Fig. 2, has adjustable ball-jointed connection with a slotted arm 46 on a rock-shaft 34 which actuates both feed-wheels 25, 33 through separate connections. The inner wheel 33, mounted in a sleeve bearing 32 on the casing, is intermittently rotated by the clutch contained therein which is actuated through a link 110 of adjustable length ball-jointed to a clutch-arm and to a slotted arm 104 on the shaft 34. The wheel 25 mounted on a pivoted arm 21 which is spring-pressed against a stop 30, Fig. 2, is similarly actuated through ball-jointed link-and-lever con-



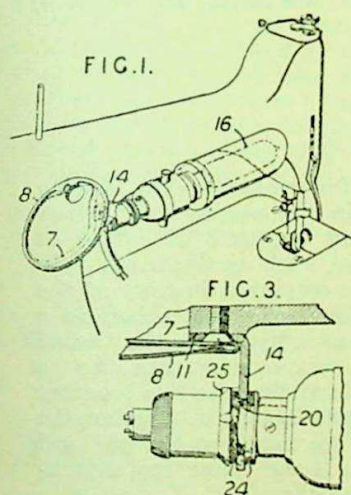
nections from a rock-shaft 63 journaled on the arm 21. The shaft 63 is rocked through a ball-jointed rod 57 of adjustable length from a slotted arm 50 on the shaft 34. The length of feed can be adjusted for both feed-wheels by means of the slotted arm 46 or independently by means of the members 50, 57 and 104, 110 respectively.

226,756. Fairweather, W., (Singer Manufacturing Co.). Sept. 3, 1924.

Illuminating-apparatus.—A lamp-holder 7 carrying a lamp 8 is mounted on a skeleton plate 11 secured by the usual screw-clamped cover-plate 5 of the inspection opening in the arm 2. The plate 11 has positioning lugs 14 and a bracket 10 in which the nipple 15 is mounted, a bushing 19 and side washers 20, 21, all of felt, providing a resilient connection. A pin 23 prevents relation of the holder in the bracket. Specification 183,738 is referred to

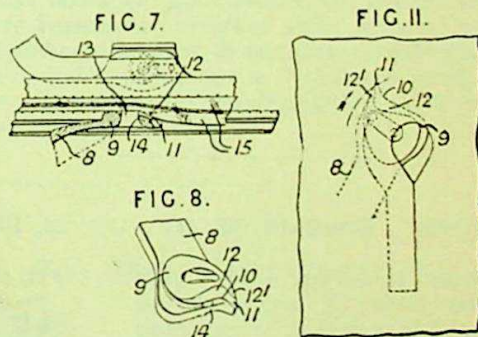


226,758. Fairweather, W., (Singer Manufacturing Co.). Sept. 5, 1924.



Illuminating-apparatus.—A bracket 14 for supporting an electric lamp 16 is fitted in a recess 11 formed in the rim of the usual inspection-opening 7 of a sewing-machine and secured by the cover-plate 8. A bushing 20 and washers 24 all of felt are interposed between the bracket 14 and the nipple of the lamp-holder. A screw-pin 25 is employed to prevent rotation of the holder in the bracket. Specification 183,738 is referred to.

needle-throat occurs, so as to cause deflection of the work material at its underside towards the button-hole slit and prevent raggedness in the completed buttonhole. The needle-throat 9 is



supported by the usual arm 8 and is provided with a needle-hole 13, from which extends in a relatively forward direction a beak 11 having on one side a resilient recess 10 round which is a shallow groove 12 bordered by a ridge 12'. A cord-hole 14 is provided. The arrow in Fig. 11 shows the direction of movement of the work relative to the throat-plate. The action of the throat-plate in deflecting spongy material 15 towards the slit is indicated in Fig. 7.

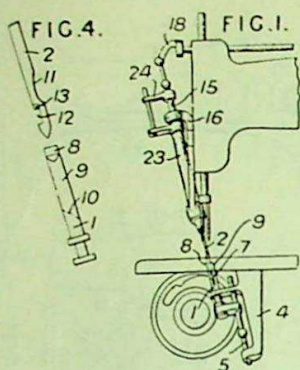
227,063. Mischke, K. June 4, 1924, [Convention date].

Trimming or cutting.—Trimming means for a festooning machine having twin needles is composed of upper and lower cutters 2, 1, the axes of which intersect the plane containing the needles in the plane of the work so that the material is cut at the stitching point. The cutter 2 is carried by a bar 15 freely mounted in a sleeve 23 which is rotatably mounted in a bracket 16. The bar

226,792. Singer Manufacturing Co., (Assignees of Wood, A. R.). Dec. 28, 1923, [Convention date].

Buttonhole sewing-machines; work-supports.—The needle-throat of a button-hole sewing-machine is formed with a beak inclined outwardly and forwardly from the needle aperture in the direction in which the relative motion of the work and the

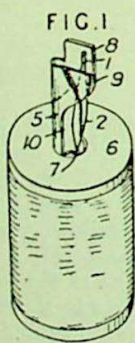
15 is reciprocated by a universal connection to a crank 18 and may be rotated in accordance with the shape of the festoon by an arm 24 splined



thereto and carried by the sleeve 23 which is actuated from suitable controlling means. The flat blade 2 is bevelled at its end to engage easily between the spring forks 8, 9 of the cutter 1. The cutter 1 is rotatably mounted in a bracket 4 and is reciprocated to avoid the needles when in the work by connection to a suitably-actuated rod 5. The cutter 2 is formed with a slot 12, which always embraces the work and contains a cutting edge 13 which co-operates with the longer arm 8 of the cutter 1. The cutter 2 is recessed at 11 to allow the reciprocation of the needle, while the floor 10 of the fork 7 in the cutter 1 is inclined to prevent snippings collecting therein.

227,073. Scofield, V. A. Oct. 22, 1924.

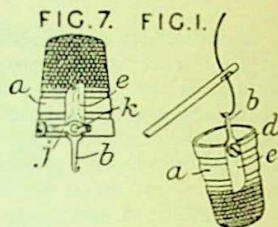
Needle - threaders. — A split tubular holder 5, which can be mounted in a reel 6, is cut away at 10 and has flattened ends 8, 9 of different lengths. The free ends of a looped piece of fine wire are gripped at 7 by one edge of the holder, while the end of the loop is narrow and flattened. The wide portion 2 of the loop is positioned in the gap 10 for easy passage of the thread. The end 8 of the holder acts to guide the needle on to the loop.



227,313. Amsden, F. H., Hoy, L. C., Thirlby, T. F., and Iles, C. E. March 17, 1924.

Needle - threaders.

— A needle-threader *b* which may be hooked or forked is pivoted to the base of a thimble *a*. The side of the thimble is flattened at *e* and the threader lies close against it when not in use. The pivot of the threader may be a rivet or a screw *d*, and the latter is prevented from clamping the threader by a circular boss on the thimble, a thick washer, or a shouldered plain portion on the screw. The threader may be pivoted on a stud *k* on the thimble and be held in place by a corrugated spring *j* which passes over the stud-head.



227,496. Vaudin, P. Oct. 3, 1923.

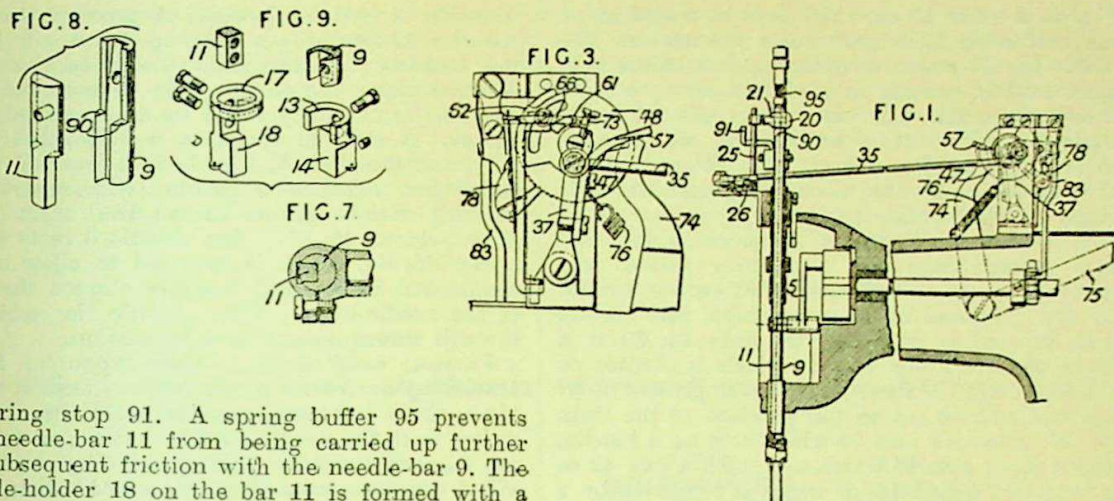
Bristles incorporated with sewing threads.—In the sewing of leather &c. by hand lengths *b* of catgut or a substitute such as Japanese fishing gut are employed instead of the usual bristle and are attached to a waxed thread *a* by rolling the thread round the bristle substitute for a space *c* and twisting the two together for a further distance *d*. The lengths of gut &c. are waxed at the end and softened in water prior to attachment to the thread.



228,085. Fairweather, W., (Singer Manufacturing Co.). Oct. 7, 1924.

Multiple - needle machines; needle - driving mechanism, disconnecting; needle holders.—In a two-needle sewing-machine in which one needle-bar can be thrown out of action, for example when turning a corner in the seam, the disengaged needle-bar is automatically brought into operation again at the end of a predetermined

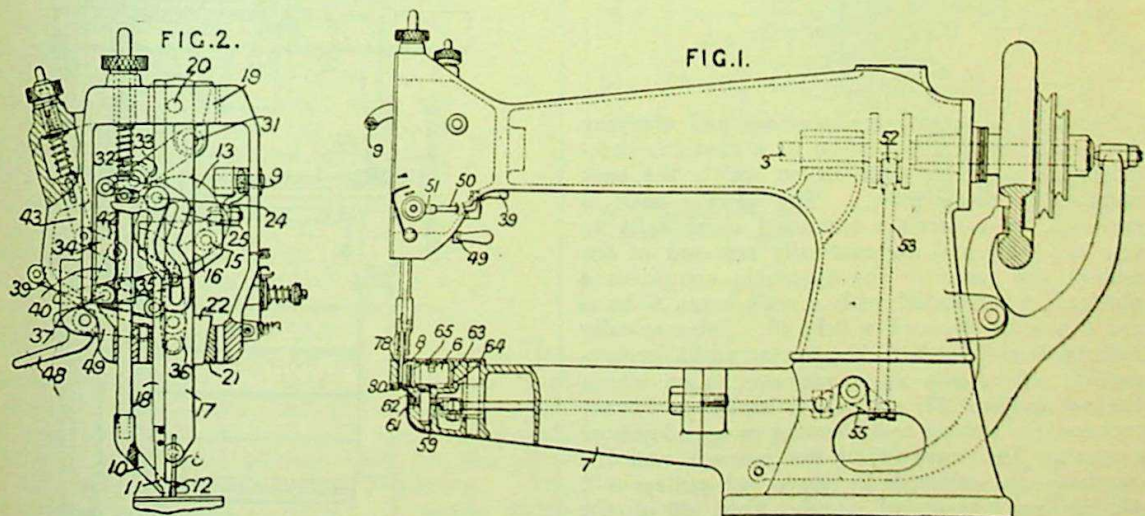
interval. The needle-bar 9 is continuously reciprocated by a crank and pitman 5 and is grooved, Fig. 7, to receive the disconnectable needle-bar 11, which at its upper end carries a yoke 20 and connecting bolt 21. The eyed end of the bolt slides upon a rod 25 fixed on a slide 26 which can be moved endwise by a lever and pitman 35. When the bolt 21 is withdrawn shoulders 90, Fig. 8, on the needle-bar 9 carry the needle-bar 11 to its highest position and it is retained there by



a spring stop 91. A spring buffer 95 prevents the needle-bar 11 from being carried up further by subsequent friction with the needle-bar 9. The needle-holder 18 on the bar 11 is formed with a ring 17 which embraces the bar 9 and the needle-holder 14 of the bar 9 has a half ring piece 13. The pitman 35 by which the bolt 21 is actuated is pivoted to a swinging frame 37, Figs. 1 and 3, which is turned against the pull of a spring 76 by a treadle-operated lever 74, 75 when the needle-bar 11 is being disengaged. This movement of the frame carries a ratchet-wheel 47, pivoted on the frame, into engagement with a pawl 78 continuously reciprocated by an eccentric-rod 83 and at the same time a latch 66 slips over a pin 73 on the frame to lock it. Thereafter the ratchet-wheel is turned until a lateral lug 61 on the wheel engages a part of the latch 66 and disengages the latch from the pin 61 so that the

frame 37 can be drawn back by the spring 76 and by means of the pitman 35, the coupling bolt 21 moved to recouple the needle-bars. The ratchet-wheel, when it is carried by the movement of the frame out of engagement with the pawl 78, is returned by a spring until a shoulder engages the underside of a stop 57. The lug 61 is formed on a plate 48 adjustably clamped on the side of the ratchet-wheel and an index 62 on the plate moves over a scale on the wheel which indicates the positions corresponding to the several numbers of stitches during which the needle-bar 11 may be kept out of action.

228,208. **British United Shoe Machinery Co., Ltd., Goulbourn, J., and Keall, F. B.** July 25, 1923.



Lock-stitching by shuttles; feed by needle and by devices engaging the upper surface of the work; presser-bars with periodic control.—In a machine for sewing leather articles of awkward shape, such as saddlery and pouches, in which all the surfaces of the free end of the work-arm

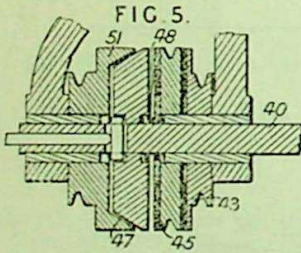
7 are close to the sewing point, the feed-mechanism is reversible. A work-feeding needle 8, Fig. 1, is reciprocated to enter the extreme end of a work-arm 7 to co-operate with a shuttle 6, wholly within the arm with respect to the needle-path. The main shaft 3, Fig. 1, carries a cam-disc 13,

Fig. 2, a roller 15 on which acts in a slot 16 on the needle-bar 17 to reciprocate the needle. The needle-bar 17 and a work-feeding bar 18 are slidably held in contact in blocks 19, 21 by adjustable wedges 22. The block 19 is pivoted at 20 while the block 21 is horizontally reciprocated to feed the work. A lever 25 pivoted at 24 to the feed-bar 18 has slotted engagement with studs on the needle-bar and a presser-bar 10 so that as the needle-bar is reciprocated the feed and presser bars are alternately raised and lowered. A lever 32 pivoted at 31 carries a roller 33 spring-pressed on to a peripheral cam on the disc 13, and is connected by links 34, 35 to a lever 36, the lower end of which is pivoted to the block 21. A three-armed lever pivoted at 37 has one arm linked to the junction of the links 34, 35, a second arm 39 which acts as a handle, and a third arm 40 which acts with a link 42 as a toggle, the position of which is regulated by a spring-pressed manually-controlled rod 43. The pivot of the links 34, 35 is coaxial with the pivot 37 at the beginning of the feed so that the position of the needle is always the same at this time. By altering the angularity of the toggle the length of feed can be regulated, and by throwing it by means of the handle 39 from one side to the other of its straightened position, the

direction of feed is altered. A grooved track on the disc 13 operates a take-up 9. A rib 12 on the feed-foot 11 surrounds the needle a short distance above the work. The presser and feed bars can be manually lifted by a two-armed lever 48, 49. A link 53 connects a ball-ended crank pin 52 on the shaft 3, Fig. 1, to a lever 55 which is in turn linked to a pivoted gear segment 59 meshing with a pinion 61 on the shaft of a shuttle-driver 62, 65. The shuttle 6 rests within a race 63, 64, which is recessed to allow of the needle-feed and which ensures correct throwing of the needle-loop. The shuttle is oscillated through three-quarters of a revolution.

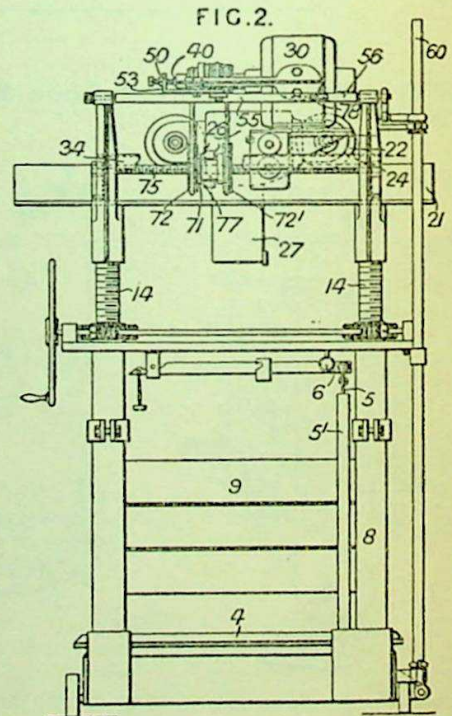
Frames; needle-guides; work-supports; thread tensioning devices.—When reverse feed is taking place, there is a tendency for extra thread to be drawn from the needle by the shuttle; to counteract this an auxiliary tension 51, Fig. 1, is provided which is normally held out of action by an arm 50 connected to the reversing arm 39. When the arm 39 is shifted to reverse the feed, the tension 51 comes into action. The needle which is grooved, is positioned with the eye facing the standard. An adjustable needle-guiding plate 80 is arranged on the base of the extremity of the work-arm.

228,429. Armstrong, J. J. V., (*Union Special Machine Co.*). June 28, 1924.



Sack-sewing machines; starting and stopping gear.—Filled sacks are sewn in a machine comprising a weighing platform on which the sack rests while being sewn. The sewing head is mounted on a carriage traversed along rails to sew the sack and automatically reversed at the end of the seam. The apparatus comprises a platform 4 connected with a scale beam 6 by a rod 5 passing through a tube 5¹. Telescopically adjustable standards 8, 14 carry a rail 21 for supporting, on wheels 22, a carriage 26 on which the swing-head 27 and a driving-motor 30 are mounted; a guide bar 34 serving as an additional support. The traverse of the carriage and the stitching are effected by three belt-pulleys 43, 45, 51 freely mounted on the shaft 40 of the motor and adapted to be clutched thereto by engagement with a fast clutch-disc 47. The pulleys 43, 51 are connected by a crossed and a direct belt respectively to pulleys 72¹, 72 rigid with a sleeve 71 threaded on a rod 75. The sleeve 71 engages a fork 77 extending from the carriage. The pulleys 43, 45 are clutched to the shaft 40

to effect the forward traverse of the carriage and actuate the striking mechanism by the movement of the clutch-disc 47 against a spring 48. The



clutch-disc is moved by the pressure of a rod 50 actuated by a lever 53. This lever bears at 55 on an eccentrically mounted counter-weighted cam-rod 56 manually moved by a treadle-actuated

rod 60 and connected to the cam rod through a sliding connection which permits the vertical adjustment of the swing mechanism carriage. When the clutch-disc 47 is moved by depressing the handle the carriage is traversed from its starting position and the stitching machinery operates until the treadle is released. The cam-bar 56 is then moved by the counterweight and releases the lever 53 so that the disc 47 is allowed to

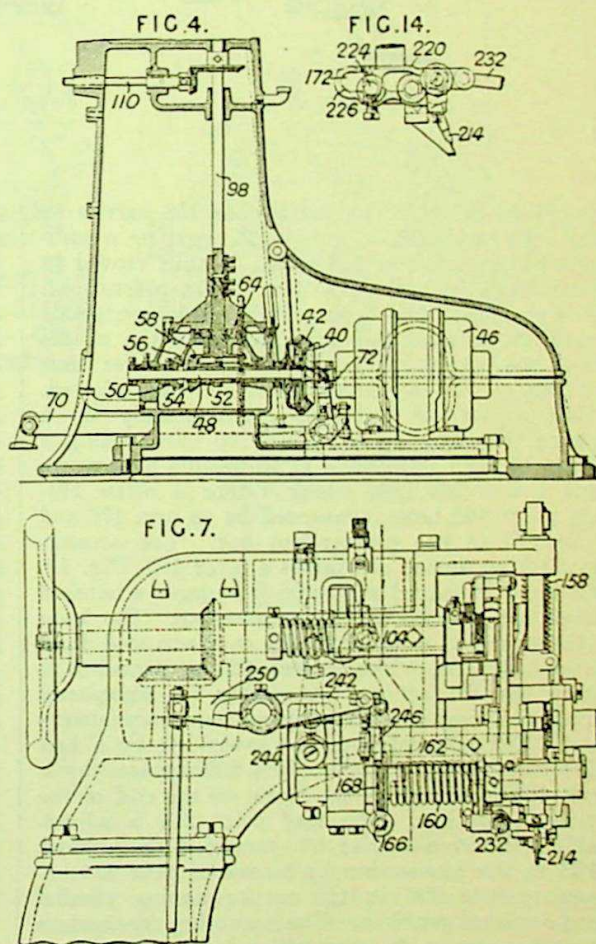
engage the pulley 51 and the carriage is returned to the starting point when the roller 55 on the lever 53 is engaged by a cam-block 78 on the bar 56 and the lever is moved sufficiently to declutch the pulley 51 but not to clutch the pulleys 43, 45 so that the machine is automatically brought to rest. An auxiliary hinged platform 9 is provided to support small sacks.

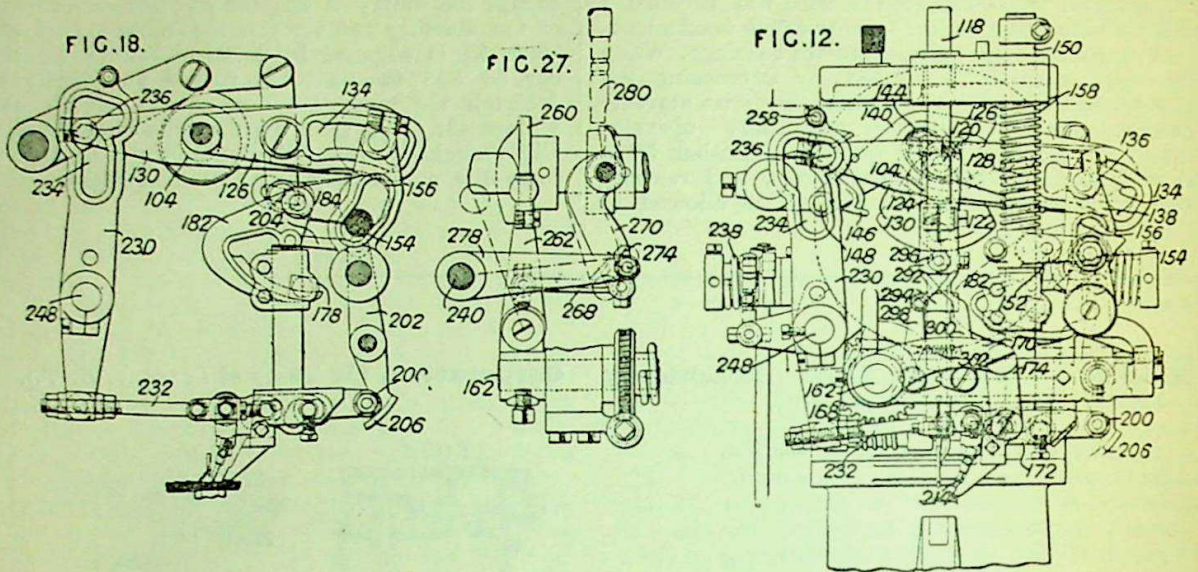
228,489. United Shoe Machinery Corporation, (Assignees of Lereque, B. T.).
Feb. 2, 1924, [Convention date].

Starting and stopping gear.—The main shaft 98 of a boot sole sewing machine is driven by a motor 46 through a two-speed gear comprising a pinion 50 fast on a shaft 48 meshing with a pinion 56 connected to the shaft 98 through a free-wheel friction clutch 64 and a pinion 54 on a sleeve 52 meshing with a pinion 58 rigid with the shaft 98. The starting is effected by a two stage movement in which a lever 72 is moved by a foot treadle 70 first to engage a clutch cone 40 with a cone 42 fast on the shaft 48 thus causing the shaft 98 to be driven through the gear 50, 56. Further movement of the lever engages the cone 42 with a cone on the sleeve 52, the driving then being effected through the higher gear 56, 58 and the clutch 64 running free. The presser foot is automatically raised when the machine is stopped by means comprising an arm 262 connected to the rock shaft 162 which operates the presser foot lifting mechanism. The arm 262 engages a snail cam 260 and is mounted so that it may be moved to one side out of engagement with the cam when the treadle is depressed during running, the means for effecting this comprising a link 268 connected to a lever 270 having an incline 274 engaged by a roll on a lever 278 mounted on the shaft 240. The automatic device may be put out of action by a pin 280 which is moved into engagement with the lever 270.

Chain-stitching needle-driving mechanism, disconnecting feed by awls; presser-bars with periodic control.—The shaft 110 driving the wheel in the usual rotary horn and the sewing-shaft 104 are bevel-gear to the shaft 98, the gears being enclosed in lubricating chambers. The straight hook needle is driven by means which effect a throw of the needle variable in accordance with the work thickness and provide for the disconnection of the needle-bar from the sewing-shaft at the top of a stroke. A block on the needle-bar 118 is connected by a link 124 to a lever 126 pivoted at 128 to a lever 130. The lever 126 has a slot 134 engaged by a block 136

on an arm 138 which is moved by connections with the presser-foot as the work thickness varies. When the axis of the block 136 is in alignment with the pivot of the lever 130 the lever 126 and lever 130 will move as one, but when the axis is out of alignment the movement conveyed by the lever 130 to the lever 126 and the consequent movement of the needle-bar will be increased or diminished. The lever 130 is latched by a latch 146 engaging a pin 148 to move in unison with a lever 140 oscillated continuously by a crank-pin 120 on the shaft 104 engaging a cam-slot 144 therein. The latch 146 is released to stop the needle-bar by means





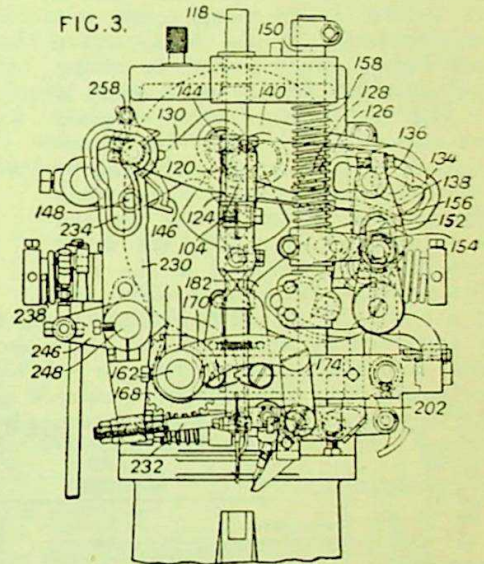
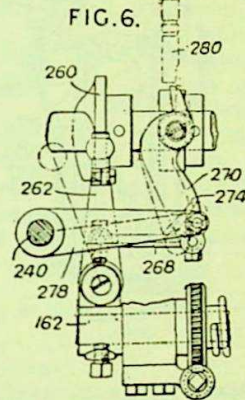
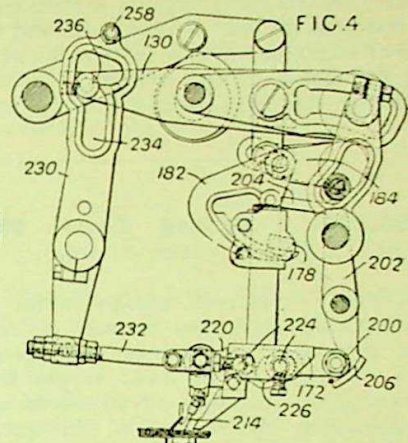
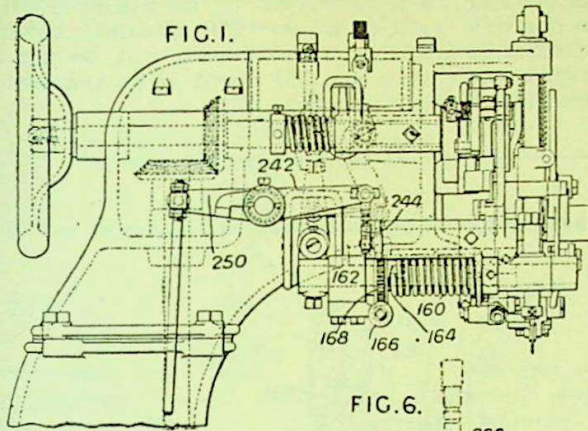
described below. The presser-bar 150 carries an arm 152 on which is a roll 154 engaging a cam-slot 156 in the arm 138 which is thus moved in accordance with the position of the presser-bar. The slot 134 is so arranged that it is concentric with the axis of the arm 138 when the needle is at the bottom of its stroke and the lower limit of the needle stroke is therefore not affected. The presser-foot is pressed downwardly by a spring 158 and by a spring 160 surrounding a shaft 162 and adjustable as to tension by a worm and pinion 166, 168 which rotate a collar 164, the shaft 162 being connected by an arm 170 and link 174 to the presser-foot bar. The presser-foot lifting device comprises a lever 182, Fig. 18, having a V-shaped edge which engages a notched block 178 pivoted to the presser-bar. The lever 182 is pivoted to an arm 184 cam actuated from the shaft 104. The lever 182 is displaced to vary the lift of the presser-bar in accordance with the work-thickness by means comprising a lever 202 connected to the lever 182 by a link 204 and having a cam-surface 206 engaged by a roll 200 mounted on the block at the end of the presser-foot bar. The feed point 214 is adjustably held in a carrier 220 mounted on a block 172 on the presser-bar by means of pins 224 engaging slots 226 in the carrier having parallel and inclined portions. The actuating mechanism for the carrier in conjunction with these slots causes it to move to and from the work as in the direction of feed. This mechanism comprises a lever 230 connected to the carrier by a link 232

and having a slot 234 at its upper end which is engaged by a roll 236 on the lever 130. A spring 238 tends to move the lever 230 to hold the left-hand side of the slot in contact with the roll so that, during the sewing operation, the lever 230 is actuated by the lever 130. A lever 242, Fig. 7, is connected by a link 244 to an arm 246 projecting from the shaft 248 of the lever 230. A lever 250 connected to the control handle is urged upwardly by a heavy spring to engage the tail of the lever 242 so that when the treadle is released at the close of a sewing operation, the lever 242 is moved downwards and the lever 230 is moved so that the roll 236 bears against the right-hand side of the slot and on reaching the upper limit moves into a lateral notch of the slot, while at the same time a stud 258 on the lever 230 engages the tail of the catch 146 and disconnects the lever 130 and accordingly the needle and feed mechanisms. The cast-off is so actuated that the needle-bar is uncovered while the needle is at the upper limit of its stroke and for this purpose is mounted to slide in a groove at the needle-bar and is connected at its upper end to a collar 292 sliding on the needle-bar and limited by the block 122 and a collar 294. A roll 296 on the collar passes between the ends of levers 298, 300 connected at their lower ends by intermeshing teeth and forced together by a spring 302. The cast-off is therefore held in upper or lower position until the engagement of the block 122 or collar 294 with the collar 292 forces the roll past the levers.

228,504. United Shoe Machinery Corporation, (Assignees of Leveque, B. T.).
Feb. 2, 1924, [Convention date].

Chain stitching; presser-bars with periodic control; needle-driving mechanism, disconnecting; starting and stopping gear; feed by awls.—A boot-sole sewing machine is provided with means

for causing the presser-foot to be lifted a constant distance above the work, for varying the needle stroke in accordance with work-thickness, in the presser-bar on stoppage. A block on the needle-bar 118 is connected by a link 124 to a lever 126 pivoted at 128 to a lever 130. The lever 126 has a slot 134 engaged by a block 136 on an arm 138 which is moved by connections



with the presser-foot as the work-thickness varies. When the axis of the block 136 is in alignment with the pivot of the lever 130 the lever 126 and lever 130 will move as one, but when the axis is out of alignment the movement conveyed by the lever 130 to the lever 126 and the consequent movement of the needle-bar will be increased or diminished. The lever 130 is latched by a latch 146 engaging a pin 148 to move in unison with a lever 140 oscillated continuously by a crank pin 120 on the shaft 104 engaging a cam slot 144 therein. The latch 146 is released to stop the needle-bar by means described below. The presser-bar 150 carries an arm 152 on which is a roll 154 engaging a cam-slot 156 in the arm 138 which is thus moved in accordance with the position of the presser-bar. The slot 134 is so arranged that it is concentric with the axis of the arm 138 when the needle is at the bottom of its stroke and the lower limit of the needle stroke is therefore not affected. The presser-foot is pressed downwardly by a spring 158 and by a spring 160 surrounding a shaft 162 and adjustable as to tension by a worm and pinion 166, 168, which rotate a collar 164, the shaft 162 being connected by an arm 170 and link 174 to the presser-foot bar. The presser-foot lifting device comprises a lever 182, Fig. 4, having a V-shaped edge which engages a notched block 178 pivoted to the presser-bar. The lever 182 is pivoted to an arm 184 cam-actuated from the shaft 104. The lever 182 is displaced to vary the lift of the presser-bar in accordance with the work-thickness by means comprising a lever 202 connected to the lever 182 by a link 204 and having a cam-surface 206 engaged by a roll 200 mounted on the block at the end of the presser-foot bar. The feed point 214 is adjustably held in a carrier 220, mounted on a block 172 on the presser-bar, by means of pins 224 engaging slots 226 in the carrier having horizontal and inclined portions. The actuating mechanism for the carrier in conjunction with these slots causes it to move to and from the work as well as in the direction of feed. This mechanism comprises a lever 230 connected to the carrier by a link 232

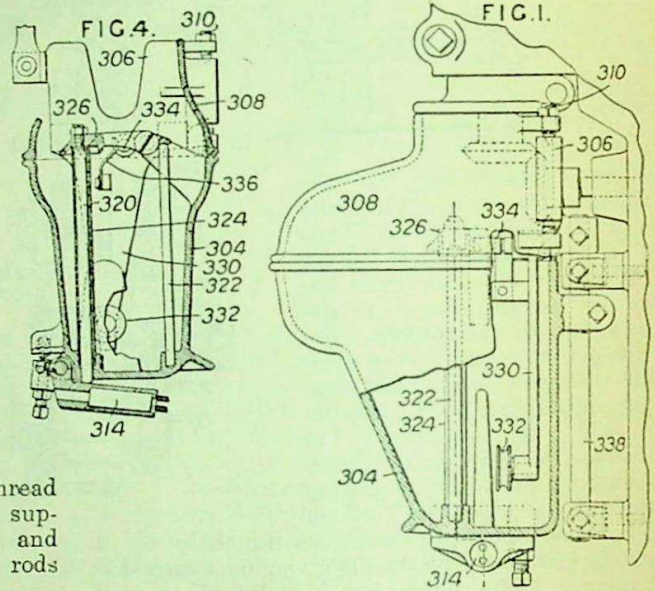
and having a slot 234 at its upper end which is engaged by a roll 236 on the lever 130. A spring 238 tends to move the lever 230 to hold the left-hand side of the slot in contact with the roll so that during the sewing operation the lever 230 is actuated by a lever 130. A lever 242, Fig. 1, is connected by a link 244 to an arm 246 projecting from the shaft 248 of the lever 230. A lever 250 connected to the control treadle is urged upwardly by a heavy spring to engage the tail of the lever 242 so that when the treadle is released at the close of a sewing operation the lever 242 is moved downwards and the lever 230 is moved so that the roll 236 bears against the right-hand side of the slot and on reaching the upper limit moves into a lateral notch of the slot while at the same time a stud 258 on the lever 230 engages the tail of the catch 146 and disconnects the lever 130 and accordingly the needle and feed mechanisms. The feed point reaches the limit of its feeding movement and the presser-foot descends while the needle is still continuing its upward stroke. The presser-foot is automatically raised when the machine is stopped by means comprising an arm 262, Fig. 6, connected to the rock shaft 162 which operates the presser-foot lifting mechanism.

ism. The arm 262 engages a snail cam 260 and is mounted so that it may be moved to one side out of engagement with the cam when the treadle is depressed during running, the means for effecting this comprising a link 268 connected to

a lever 270 having an incline 274 engaged by a roll on a lever 278 mounted on the shaft 240. The automatic device may be put out of action by a pin 280 which is moved into engagement with the lever 270.

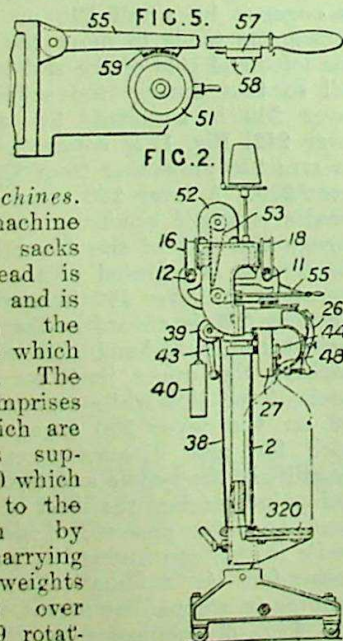
228,506. United Shoe Machinery Corporation, (Assignees of Leveque, B. T.).
Feb. 2, 1924, [Convention date].

Waxing thread.—A wax-pot is thermostatically controlled by rods which are immersed in the wax and effect the variation of the heat supply by varying the distance of an electrical heater from the bottom of the pot. The wax-pot 304 is provided with a lid formed in two parts, a part 306 rigidly secured to the frame and a part 308 pivoted at 310 to swing laterally. The heating member 314 is pivoted and spring-pressed towards the bottom of the pot. The movement of the heater is controlled by rods 320, 322, the rod 320 extending through the bottom of the pot and being enclosed in a tube 324 which extends above the level of the wax. The rods 320, 322 bear on either end of a lever 326. A guide-roll 332 for the thread is supported by a bracket 330 which also supports a wax-stripper comprising a rod 334 and leaf-spring 336. The wax-pot is clamped on rods 338 on which it may be adjusted vertically.



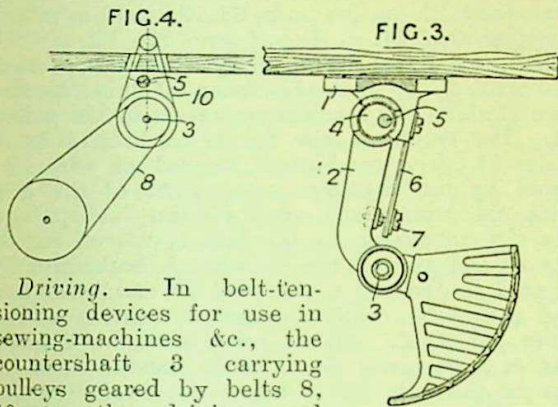
228,619. Armstrong, J. J. V., (Union Special Machine Co.). Nov. 7, 1923.

Sack-sewing machines.—In a sewing-machine for closing filled sacks &c. the sewing-head is mounted on rails and is traversed across the mouth of the sack which is held stationary. The machine-frame comprises uprights 2 on which are slidable brackets supporting a table 320 which can be adjusted to the desired position by chains 38 carrying counterbalance weights 40 and passing over sprocket wheels 39 rotatable by a handle 43.



The sewing-head is supported by a carriage comprising depending brackets 15 and is mounted on three wheels, two of which are shown at 16, 18 running on rails 11, 12. Sacks are attached to hooks 48 secured to a rail 44 passing between the needle-arm 26 and work-support 27 of the sewing-head. A line of stitching is made across the sack just below the hooks, the reaction of the feed-dog against the sacking causing the traverse of the sewing-head. The stitching-mechanism is driven by a motor 52 which actuates a driving-wheel 51 through a belt 53. An arm 55 carrying a brake-block 59 is mounted so that the block may be moved into contact with the driving-wheel 51 by hand operation, the arm also carrying a switch-block 57 with finger-studs 58 by which the current to the motor is controlled.

228,886. Union Special Maschinenfabrik Ges. Feb 4, 1924, [Convention date].

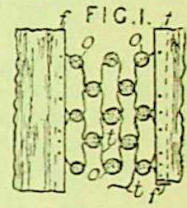


Driving.—In belt-tensioning devices for use in sewing-machines &c., the countershaft 3 carrying pulleys geared by belts 8, 10 to the driving and driven shafts, respectively, is supported in a frame 2 pivoted on eccentrics 4 on a shaft 5 carried parallel to the shaft 3 in a bed 1 secured at one end table. A leaf-spring 6 is secured at one end to the bed 1 and at its other end carries

a screw 7 engaging a threaded hole in the frame 2. The tension of the belt 8 is controlled by adjustment of the screw 7, and that of the belt 8 by rotation of the shaft 5, which is secured in its adjusted position by a set-screw. The spring 6 reduces vibration of the work-table.

229,097. McHardy, M. C. Feb. 19, 1924.

Seams.—Pieces of fabric are decoratively connected together by folding over the edges *f* and connecting them by a thread *t* carrying beads or other ornaments *o*. The beads may be mounted singly or in clusters and the thread is knotted as required.

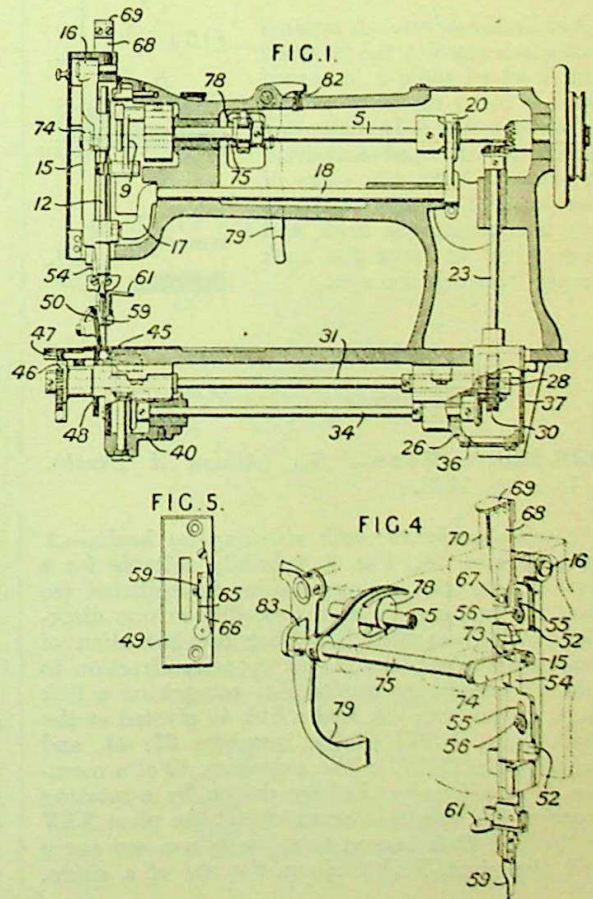


229,218. Fairweather, W., (Singer Manufacturing Co.). Oct. 2, 1924.

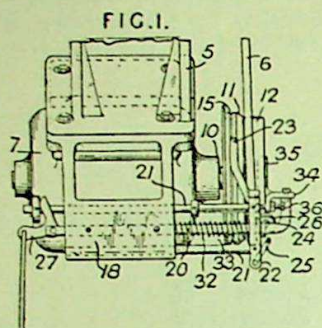
Trimming.—In a continuous-feed sewing-machine the reciprocating needle and trimmer bars both slide in a frame vibrating in the line of feed, so that the work and the said bars are relatively stationary during stitching and cutting. A trimmer-bar 54 has pin-and-slot connections 55, 56 with lugs 52 on a vibrating frame 15 pivoted to the machine-head at 16. The bar 54 is reciprocated by a stud 73 on an arm 74 of a shaft 75, Fig. 4, which is oscillated from a cam 78 on the main shaft 5. An arm 69 on a vertically-movable bar 68 which is universally pivoted at 67 to the trimmer-bar 54 rests on a rod 70 spring-pressed upwards within the presser-bar. A slotted lug 83 on a hand-lever 79 engages a groove in the shaft 75, Fig. 4. Actuation of the lever 79 against a spring 82, Fig. 1, moves the shaft 75 endwise to disengage the stud 73 from the trimmer-bar. A trimmer-blade 59 having a finger-piece 61 is laterally adjustable on the bar 54 and coacts with the edge 65 of a slot in the throat-plate 49, Fig. 5, which carries a spring-pressed follower 66. The frame 15 is vibrated by a crank 17, Fig. 1, on a shaft 18 rocked from an adjustable eccentric 20 on the main shaft 5.

Lock-stitching by hooks; feed by wheels.—The needle-bar 12 is reciprocated in the vibrating frame 15 by the usual crank 9 and co-operates with a hook 45, Fig. 1, rotated through shafts 34, 23 from the main shaft. A feed-wheel 48 which co-operates with a presser-wheel 50 is rotated through gearing and shafts 47, 46, 31, 30, 28, 23 from the main shafts.

Frames.—Housings 40, 26 attached to the bed of the machine carry bearings for the shafts 23, 31, 34 and enclose the gears thereof. The housing 26 may be packed with lubricant and is closed by detachable plates 36, 37.



229,262. Maimin Speed Control Corporation, (Assignees of Maimin, H.). Feb. 14, 1924, [Convention date].

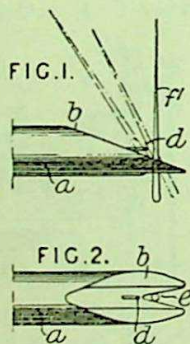


Driving.—A frame 5 bolted to the underside of a sewing-machine standard carries a motor 7 the shaft 10 of which carries a coned loose pulley 12 and a coned fast pulley 11 stepped slightly from the loose pulley and having a cylindrical part

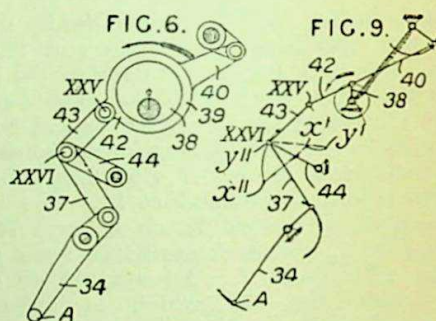
with a groove 15. Rods 21 are slidably mounted in a plate 18 on the motor frame, and a cross-head 22 carried by the rods slides against a spring 33 on a rod 20 fixed to the plate 18. The cross-head 22 carries rods 23, 25 and a roller-carrying arm 24. The frame 21, 22 can be shifted against the spring 33 by a treadle-operated bell-crank 27 so that the roller 26 aided by the arm 25 shifts the machine-belt 6 on to the pulley 11. The travel of the frame is limited by a collar 32. The machine is started at very low speed by the slipping engagement of the belt with the upstanding edge of the fast pulley, the slip decreasing as the belt is moved across the conical part of the pulley. A brake-arm 34 pivoted to the end of the rod 20 carries at one end a shoe 35, which engages the inside of the loose pulley 12. At the other end the arm 34 carries a set-screw 36 which is pressed upon by one of the rods 21 to apply the brake as the drum 28 moves the belt on the loose pulley. Specification 223,917 is referred to.

229,461. Fitzgerald, J. Jan. 17, 1924.

Needle-threaders.—A tapered slot *c* is formed in the bevelled end *b* of a handle *a*, a thread hook *d* being mounted in the axis of the slot. In threading a needle *f* it is advanced till it contacts with the sides of the slot, slid lengthwise till its eye is opposite the hook and then tilted to cause the hook to pass through the eye.



Small movements along the line x^1, y^1 forming part of this closed curve cause large movements along the arcuate line x^{11}, y^{11} . The rotating



member 38 may be an eccentric disc 38, Fig. 6, the member 40, 42 being constituted by the strap 39 having extensions 40, 42.

229,538. Sokal, S., (Adrian & Busch). Dec. 13, 1923.

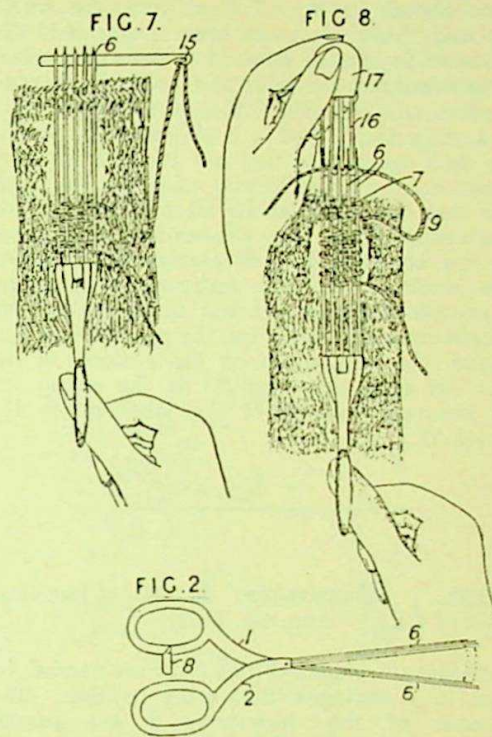
Sewing-machines; lock stitching by hooks.—A take-up arm 34, Fig. 9, specially suitable for a hook-needle sole-sewing machine is oscillated (so that its free end *A* moves steadily in one direction to deliver the thread for the formation of the loop and rapidly in the opposite direction to take up slack), by mechanism comprising a link 37, a radius arm 44, and a link 43 pivoted at the pivot point XXVI of the members 37, 44, and connected at XXV to the extension 42 of a member 40 of a four-bar linkage driven by a rotating member 38. By this arrangement the pivot XXV of the link 43 is caused to move in a closed curve and the pivot XXVI along the arc of a circle.

229,900. Singer Manufacturing Co., Ltd., and Birch, R. R. April 23, 1924. Drawings to Specification.

Sewing-machines; driving.—In a sewing-machine driven by an electric motor secured to the machine head, as described, for example, in Specification 182,033, the motor is insulated from the machine head at the connection of the motor-supporting bracket and the machine head, or, of the motor and the supporting bracket, or, between the field core and the end housing of the motor.

230,048. Blockx, (veuve Baichez), J. Feb. 28, 1924, [Convention date].

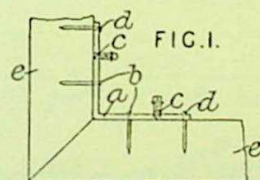
Darning.—A device for making, ornamenting, repairing &c. fabric articles, particularly hosiery articles, comprises a pair of hand-operated members 1, 2 pivoted together in the manner of a pair of scissors and carrying sets of needles 6 arranged alternately. A movable stop 8 is employed to define the position of the handles so that the needles lie in one plane. When the stop is moved aside the two sets of needles may be moved alternately to one side or the other of this plane. In using the instrument for darning purposes a thread 9 is led between the separated needles and their position is then reversed, the process being repeated until the desired length of weft has been produced. The needles are then brought into one plane and inserted in the fabric to be darned as shown at 7 and the thread is led through the eyes by means of a threader 15. The lengths of thread between the needles are then engaged by hooks 16 supported in a handle 17 and the needles are withdrawn, thus leading threads through the weft to form a warp. The piece of fabric so formed is afterwards fixed at its other end by turning over the needle support. The sides of the patch so formed may be attached by an ordinary needle or by the multiple needle device. When used for patching worn fabric without holes the instrument is simply threaded into the fabric, the eyes threaded, the threads engaged by the hooks, and the needles withdrawn.



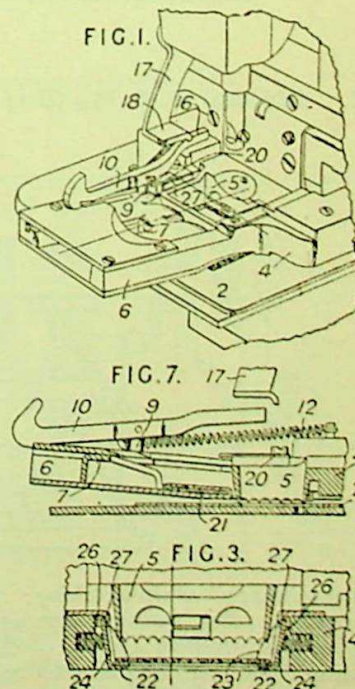
230,094. Elbern, A. March 3, 1924, [Convention date].

Sewing, work-holders for.

A stretching-appliance for artists' canvases, tapestry, &c. comprises four angle-pieces *a*, which are secured to the sides *c* of the stretching-frame by nails *b*, *d*, or the like. The sides of the frame are forced away from the angle-pieces by means of screw bolts *c*, the nails *b*, *d* being partially drawn out.



loosely pivoted between ledges 26 and retaining plates 27, Fig. 7, and are normally spring-pressed



230,259. Thornton, A. A., (Rose Patch & Label Co.). Feb. 29, 1924.

Label-attaching machines.—A machine for sewing on labels or patches comprises a work-support 2 and a work-clamp 4, both of which are apertured to fit the labels. The clamp carries a label-slide 6 in which is arranged a transporting member 7, Figs. 1 and 7, a pin 9 on which carries a pivoted finger-latch 10 to hold the member 7 at the rear of its stroke against a spring 12. Within the aperture of the clamp 4 are arranged label-supports 22, 24, which have horizontal arms

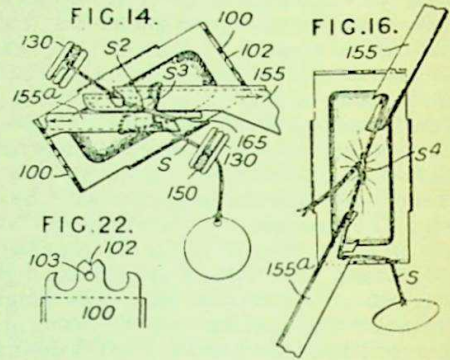
outwards. Cam-surfaces 23¹ on the supports engage with similar surfaces on a label presser-foot

5 when the latter descends so that the supports are forced aside. Starting with the parts in the position shown in Fig. 7 first, both the work-clamp and the presser-foot are raised and the finger-latch 10 is then released to allow the member 7 to transport the label 21 to a half-way position when the end 16 of the latch 10 contacts with a projection 18 on a casing-arm 17. The clamp and the presser-foot are lowered in turn, the movement of the former releasing the latch 10, so that the label can be transported right on to the supports 22. The presser-foot then forces aside the supports 22 and clamps the label on to the work around the work-support aperture. The presser-foot may descend much lower than the main-clamp to allow for the presence of buttons and like inequalities on the surfaces of the work. An adjustable stop 20 on the clamp ensures accurate delivery of the label on to the supports 22.

230,351. Alexander, A. E., (*American Tobacco Co.*). Aug. 12, 1924.

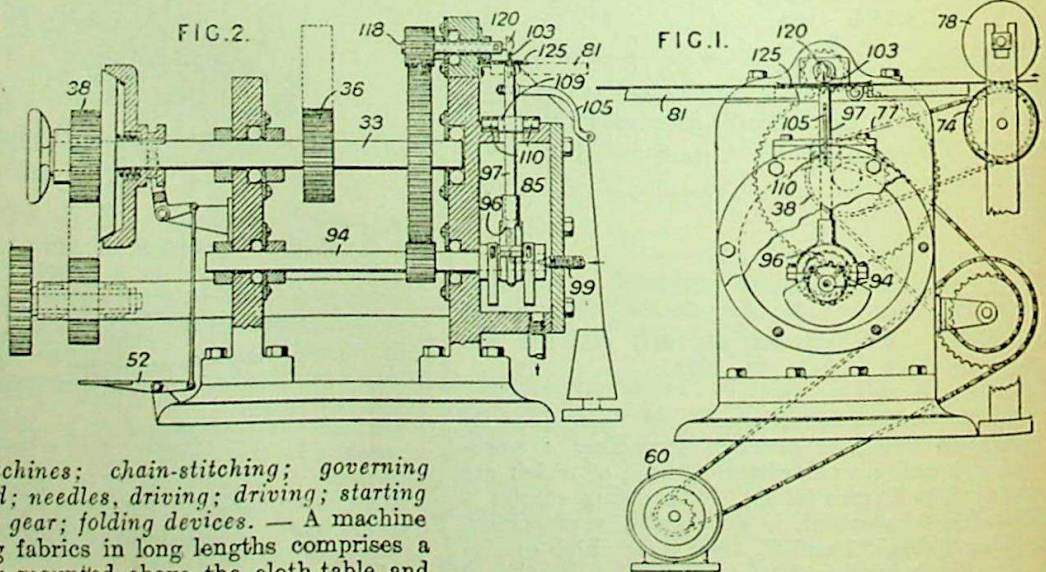
Knot-tying devices.—Filled bags are carried by holders in a conveyer into tying position. The free ends of the drawstring S are passed through diagonal slots 102, Fig. 22, into eyes 103 in plates 100 at the sides of the holder. The tying-mechanism comprises gripping and manipulating members 130, Fig. 14, and looping members 155, 155^a. The members 130 grip the

strings and rotate so that the horizontal string portions between the bag and the plates 100 pass into the jaws 130, 150 and are gripped therein. The members 130 then withdraw the free ends of the strings from the slots 102 and diverge so as to tighten the drawstring and close the bag.



Meanwhile the arms 155, 155^a have converged and the string is carried around their ends by the members 130 as shown in Fig. 14. The portion S is carried around both arms and is brought, by a downward movement of the member 130 holding it, into a gripping notch in the arm 155^a. The other portion is carried around both arms, into a notch 165 on the arm 155^a and into a gripping notch in the arm 155 so that a portion S² is above a portion S³ on the string S. The arms are then retracted as shown in Fig. 16 to form a single bow knot S⁴ and the string is pushed out of the gripping notches.

230,352. Marks, E. C. R., (*Benjamin Co., Inc., E. V.*). Aug. 13, 1924.



Sewing-machines; chain-stitching; governing needle thread; needles, driving; driving; starting and stopping gear; folding devices.—A machine for hemming fabrics in long lengths comprises a rotary looper mounted above the cloth-table and co-operating with a needle operating from below the cloth-table, the needle bar being mounted direct on an eccentric strap and guided by an

oscillating guide. The looper 120 and needle 103 are mounted adjacent to a table 81 with hem-

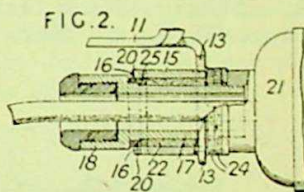
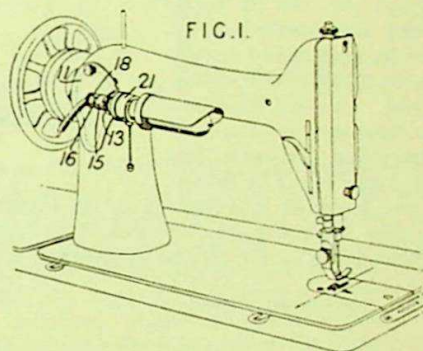
ming-guides 125. The needle-bar 97 slides in a guide 109 having trunnions 110 and is mounted on an eccentric-strap 96 driven by a shaft 94. A take-up arm 105 is mounted on the needle-bar. The shaft 94 and the shaft 118 of the looper are geared to a shaft 33 which may be clutch-connected to a gear-wheel 38 geared by chains and

intermediate gears to a motor 60. The clutch is operated by a treadle 52. The needle-operating eccentric is enclosed in a casing 85 and may be oiled through an oil-feed nipple 99.

Feeding long lengths of fabric.—The material is fed by rollers 74, 78 geared by a chain 77 to a gear-wheel 36 on the shaft 33.

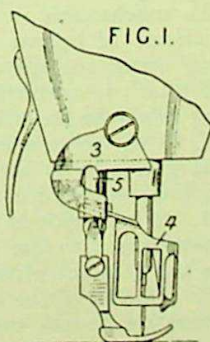
230,537. Fairweather, W., (Singer Manufacturing Co.). Dec. 11, 1923.

Sewing-machines; illuminating-apparatus.—In means for mounting electric lamps on sewing-machines an anti-vibration device is provided comprising a support having an apertured portion 13 adapted for attachment to the gooseneck of the sewing-machine, a sleeve 17 disposed within the aperture of the support and carrying a horizontally-disposed lamp-holder 21, a felt or like cushioning bush 22 being disposed between the sleeve and the support. The support is in the form of a cover-plate 11 for the usual inspection opening in the goose-neck of the machine and has an outwardly-turned apertured ear 13 within which is secured an outer sleeve 15. For preventing relative rotation between the inner and outer sleeves 17, 15, the latter is provided with diametrically-opposed tongues 16 engaging flats 20 formed on the enlarged head 18 of the former, a cushioning washer 25 disposed between the two being bent over the flats by the tongues 16. Cushioning washers 24 are also disposed between the lamp-holder and the apertured ear 13. Specifications 183,738, 187,193, and 187,785, are referred to.

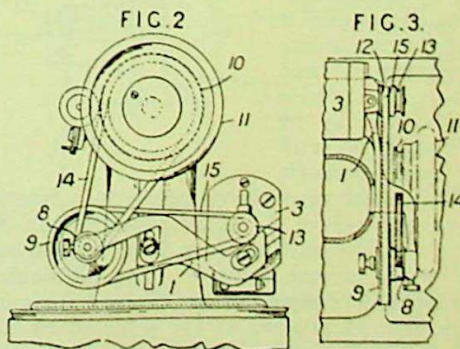


230,633. Singer Manufacturing Co., Ltd., Corral, H., and Heggie, J. March 22, 1924.

Sewing-machines; finger-guards.—A stop-member 3 is provided to prevent the movement of a guard 4 out of its guarding position while the presser-bar 5, to which the guard is attached, is lowered. The stop also serves to engage the guard when turned aside after lifting of the presser-bar and prevent the bar from being lowered until the stop has been turned into guarding position. Specification 2072/13 is referred to.



230,652. Singer Manufacturing Co., Ltd., and Corral, H. April 10, 1924.

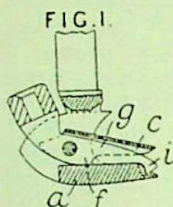


Sewing-machines; driving.—A driving attachment for sewing-machines, adapted to allow a change of speed, comprises a bracket 1 carrying a motor 3, on the shaft of which are equal pulleys 12, 13, and spaced apart from the motor two unequal pulleys 8, 9, the pulley 12 being in the

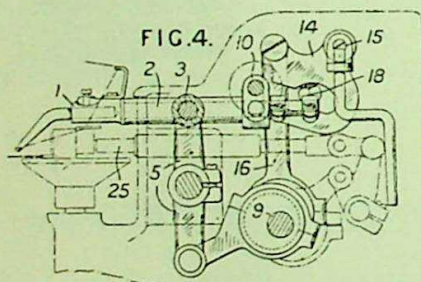
plane of the pulley 9 and both the pulleys 13, 8 in the plane of a pulley 10 on the balance wheel 11. The dimensions are so chosen that the machine may be driven direct by passing the belt 14 over the pulleys 10 and 13 or indirectly by the belt 14 connecting the pulleys 10 and 8, a second belt 15 being then required to connect the pulleys 9 and 12. Specification 182,033 is referred to.

230,720. Claas, A. Sept. 4, 1924.

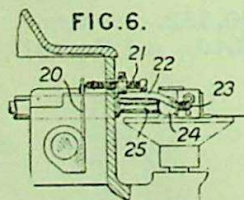
Knot-tying devices. — A knotting-bill for use in binding-mowers and straw-binders comprises a stationary member *a*, an upper movable member *c* and an intermediate tongue *g* having a hooked end *i* and movable between the members *a* and *c*. The movement of the member *c* is limited by an abutment *f* so that the tongue *g* has freedom of movement when a knot is formed over the members *a* and *c*.



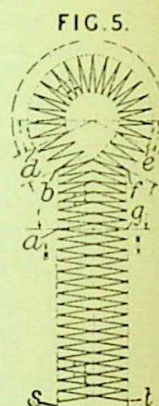
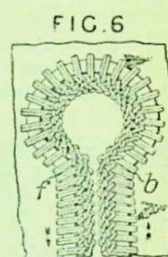
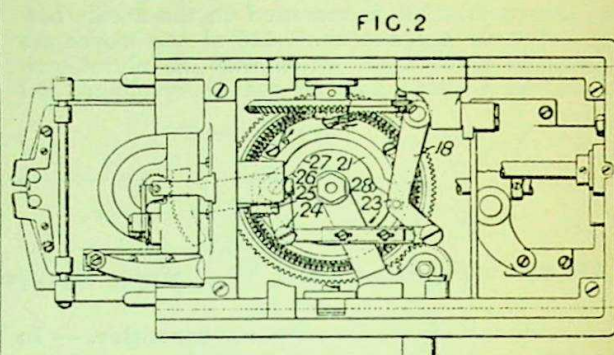
230,999. Singer Manufacturing Co., Ltd., Corral, H., and Heggie, J. March 26, 1924.



Overhead sewing machines. — The looper mechanism comprises a sleeve 2 surrounding the looper-bar 1 and moved to give endwise movements thereto by an oscillating lever 5 actuated by an eccentric on the shaft 9 and pivotally connected to a lateral arm 3 on the sleeve 2. A suspension link 10 pivoted to a collar on the sleeve 2 causes the bar 1 to tilt when moved endwise. The oscillating movements of the looper-bar are derived from an oscillating cam 14 pivoted at 15, actuated by an eccentric rod 16 from the shaft 9 and engaging a ball-stud 18 projecting from the bar 1. The thread is controlled by a nipping device comprising a tappet-arm 20 on the shaft 9 which engages the end of a screw 21 mounted on a lever 22 and causes a roller 23 on the lever to bear as the needle starts to retreat against a part 24 of a thread-nipping device carried by the needle-bar 25.



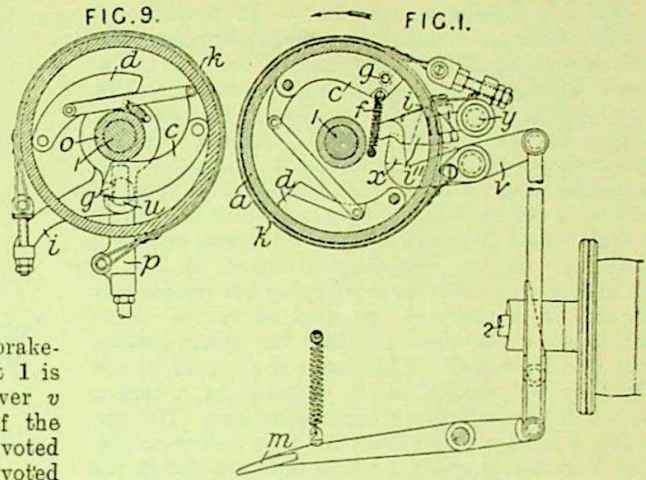
231,081. Fairweather, W., (Singer Manufacturing Co.). Sept. 11, 1924.



Button-hole sewing-machines. — In a button-hole sewing-machine having means for rotating the stitching mechanism to sew round the eye of a button-hole, means are provided for reversely rotating the stitching mechanism during the stitching of part *a, b* of the shank of the button-hole immediately adjacent to the eye, subsequently forwardly rotating the stitching mechanism during the stitching of the eye from *d, e* through 180° plus twice the angle of reverse rotation, and again reversely rotating the mechanism during the stitching of the part *f, g*. The object of this rotation is to place the initial stitches of the eye more nearly normally to the curve of the eye and also to crowd the depth stitches at the parts *a, b* and *f, g* for strengthening purposes. The mechanism is described in application to a machine of known type having a jogging needle and comprises a cam-track 21 actuating a lever 18 which is connected by links and toothed gearing to rotate the stitching mechanism. The part 23, 24 of the cam is concentric, corresponding to the part *s, a* of the button-hole; the part 24, 25 inclines outward corresponding to the part *a, b*; 25, 26 corresponds to the rotation *d, e*; 26, 27 corresponds to the part *f, g*; 27, 28 corresponds to the straight stitching *g, t*, and 28, 23 effects the rotation of the mechanism at the close of an operation to set the machine in readiness for a fresh button-hole.

231,086. Adrian, J. Sept. 24, 1924.

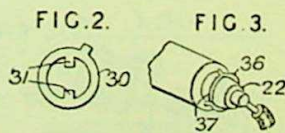
Sewing-machines; starting and stopping gear. — A device for stopping a shoe-sewing or like machine at a predetermined position, which comes into action at a predetermined speed, comprises a lever connected to one end of a brake-strap and lying in the path of a rotating weight pivoted so that it moves inwards to engage the lever when its speed of rotation diminishes sufficiently. A shaft 1 which is to be stopped is driven from a shaft 2 actuated through clutch gear operated by a clutch and brake lever *m* which is moved manually to start the machine. A brake-band *k* surrounding a drum *a* on the shaft 1 is connected at one end to a stud on a lever *v* actuated by the treadle. The other end of the band is connected to one arm of a lever *i* pivoted at *y* and having a second arm on which is pivoted a hook-member *i*¹¹. The end *x* of the lever *v* is wedge-shaped and when raised moves the part *i*¹¹ laterally into the path of a stud *g* on one of a pair of interconnected weights *c, d* pivoted to the drum. When rotating at speed these weights move outwardly into contact with the periphery of the drum, but when the speed is reduced owing to the declutching and braking the weights are moved inward by a spring *f* till the stud *g* engages a notch in the part *i*¹¹ and causes the sudden application of the brake and stoppage of the shaft. In a modification the separate journals for the levers *i, v* are dispensed with. The shaft



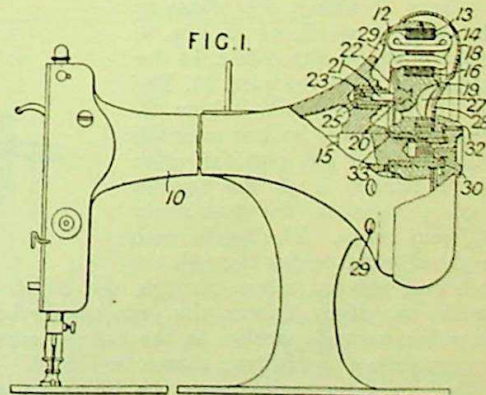
1 to be stopped is journaled in a hub *o*, Fig. 9, on which swings a lever *i* carrying one end of the band *k*, the other end being attached to a slide *p* attached to the treadle. The slide carries a gudgeon *u* projecting through a slot in the lever *i* into the range of the stud *g* carried by one of the weights. When the stud contacts with the gudgeon both the lever *i* and the slide *p* are moved laterally but the end of the band attached to the lever has a greater movement than the end attached to the slide and the band is therefore tightened upon the drum.

231,168. British Thomson - Houston Co., Ltd., (Assignees of Welch, A. F.). March 18, 1924, [Convention date].

Sewing - machines; driving. — The sewing-machine arm 10 is flared outwardly at 12 to support a field structure 13 carrying a winding 14. An armature 16 mounted on a spider 19 rotates within the field and drives the shaft 15. A shield 18 is secured to the spider 19 and extends over the end of the casing to protect the motor and serve as a hand-wheel. A commutator 20 carried by the spider is engaged by brushes 21 stressed by springs 23 mounted in the brush holders 22 which are insulated by insulation 25. Openings 27, 28, 29 are provided in the spider, shield and machine casing respectively to promote circulation of air. The leads are attached to the commutator brushes by clips 36 engaging grooves 37



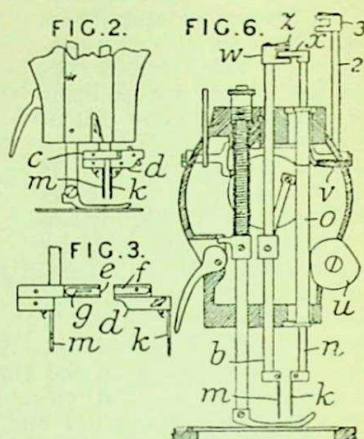
in the brush holders. To allow rotation of the motor without driving the machine a clutch device is provided consisting of a washer 30, having



lugs 31 engaging slots in the shaft, and a thumb-nut 32 which clamps the spider between the washer and a shoulder 33 on the shaft.

231,193. Brase, W., and Graaff, C. March 21, 1924, [Convention date]. Void [Published under Sect. 91 of the Act].

Multiple-needle mechanism.—In a multiple-needle machine in which the needles are arranged one behind another in the line of feed, the distance between the needles is adjustable, and in some cases may be automatically varied when the length of the feed is adjusted. In the arrangement shown in Fig. 2 a needle *k*, mounted with a needle *m* on a block *c*, is secured in a block *d* having a spline *f* engaging a slot *e* in the block *c* and locked in position by a set screw entering a slot *g*. In the modification shown in Fig. 6 an auxiliary needle bar *n* carrying the needle *k* is guided by a sleeve *o* mounted on radius arms which allow its distance from the main needle-bar *b* to be varied. The sleeve is stressed to the right by a spring *v* and is adjusted by a cam *u* linked to the stitch-varying mechanism. The bar *n* has a head *x* which is locked in a fork *w* on the bar *b* by a spring pin *z* which enters a slot in the head *x*. When it is desired to put the needle *k* out of action the head may be disengaged from

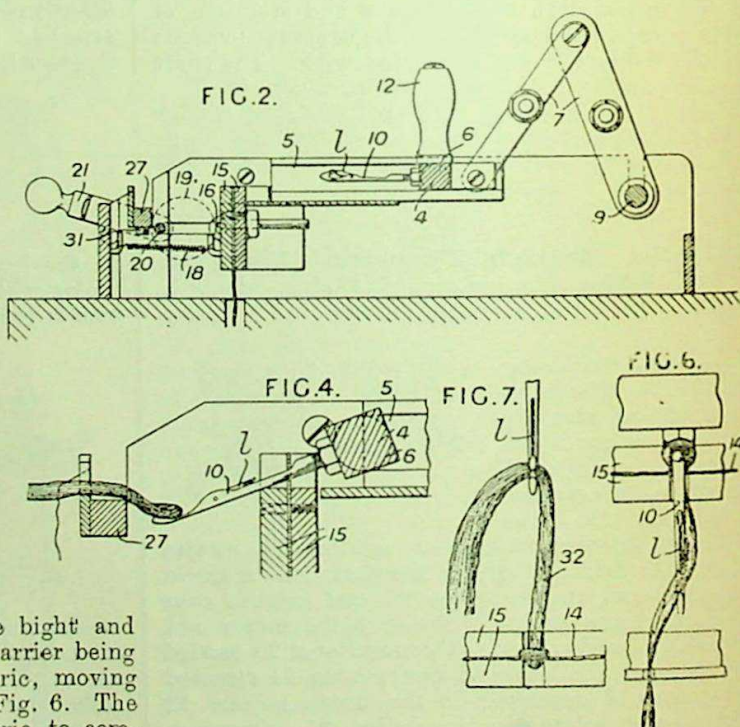


the fork and engaged by a similar fork 3 carried by a standard 2.

CORRES. U.S. 1676853 (1974)

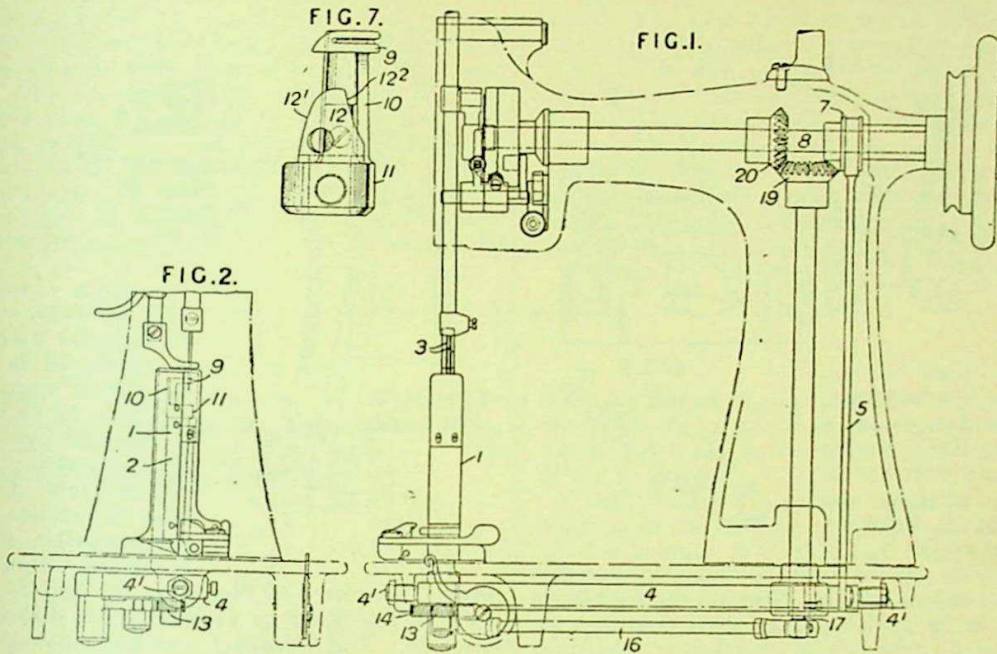
231,273. Black, C., and Cloak, H. Jan. 30, 1924.

Tufting-machines.—A manually operated and controlled tasselling and fringing machine forms the loops 32 shown in Fig. 7 by means of an apparatus involving a battery of needles 10, a work holder 15, and a yarn holder 27. The needles are mounted on a bar 4 having end rollers 6 which work in guideways 5. The bar 4 is connected by links 7 to a rod 9 mounted in the frame, and is also provided with handles 12 to move its rollers 6 along the slideway and to tilt it as shown in Fig. 4, to pass through the fabric 14 for engagement with the yarn 31. The yarn is placed in the holder 27 double, and either hooked over the needles, which are provided with pivoted latches *l*, or the needles moved to engage the previously positioned loops. The needle with a bight of yarn passes through the fabric and returns along through the bight and over the top of the fabric, the yarn carrier being meanwhile moved parallel to the fabric, moving the yarn into the position shown in Fig. 6. The needle is now retracted over the fabric to complete the tassell-forming operation. The work-holder 15 comprises a pair of plates cut away at the parts where the needles penetrate the fabric, the plates being clamped by the engagement of cams 19 with rods 16 on one of the plates, the



cams being mounted on a shaft 20 provided with handles 21. A spring 18 retracts the movable clamping-plate when released by the levers and cams.

231,322. Singer Manufacturing Co., Ltd., Corral, H., and Heggie, J. March 26, 1924.

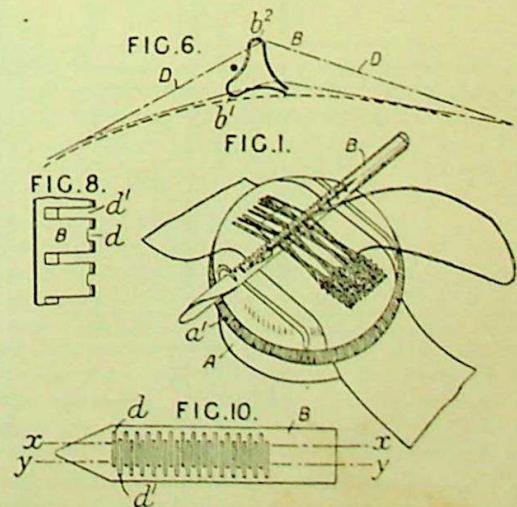


Chain-stitching and double-loop stitching; multiple-needle machine. — In glove-making and like machines in which an oscillating looper is provided within a work-supporting pillar, the vertical spindle of the looper is mounted, for the purpose of causing the looper to describe arcs on opposite sides of the needle path, on a tilting frame at the base of the machine. In the machine described, twin needles 3 co-operate with a looper mounted on a spindle 2 within a tubular pillar 1. The spindle 2 is mounted in a bar 4 pivoted at 4¹ and having at its further extremity arms pivoted to the arms of a forked lever 5 actuated by an eccen-

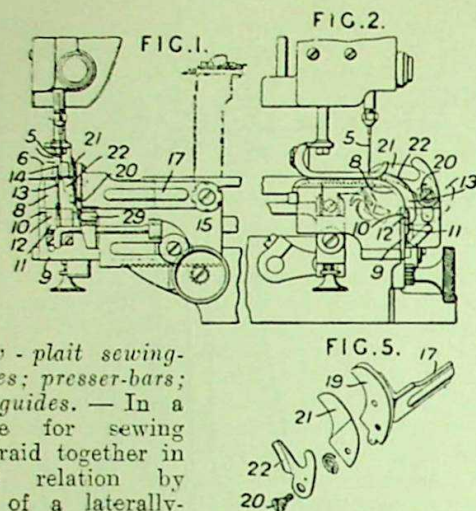
tric 7 to rock the bar about the pivot 4 and move the looper from side to side of the needle path. The oscillations of the looper are effected by a toothed sector 13 mounted on the bar 4, meshing with a pinion 14 on the spindle 2 and actuated by a link 16 connected to a crank 17 driven by bevel gearing 19, 20 from the main shaft 8. The looper comprises a blade 9 carried by a shank 10 integral with a ring 11. Beneath the blade is a looper-thread deflector 12 having convex and concave edges 12¹, 12² respectively to engage the thread on the advance and retreat of the looper.

231,402. Kelly, J. W. Nov. 28, 1924.

Darning. — A darning appliance comprises a block A to which the material to be darned is clipped and a pin B of triangular cross-section having slots which are recessed in two of the corners b¹, b² alternately to a greater and a less degree. The material is held on the block A, which has a rounded top, by a spring clip a¹. The pin B is adapted to act as a shedding device, the warp threads D being laid in the slots d, d¹. As the pin is turned from side to side to bring the corners b¹, b² uppermost alternately the two studs into which the warp threads are divided are lifted alternately. A threaded needle is passed between the sheds at each movement of the pin. The pin may be formed of sheet metal, the blank shown in Fig. 10 being bent along lines x, x and y, y. Specification 238,885 is referred to.

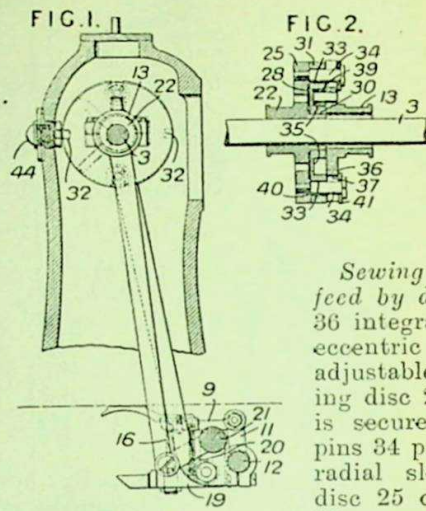


231,412. Singer Manufacturing Co.,
(Assignees of Becker, R.). May 2, 1924,
[Convention date].



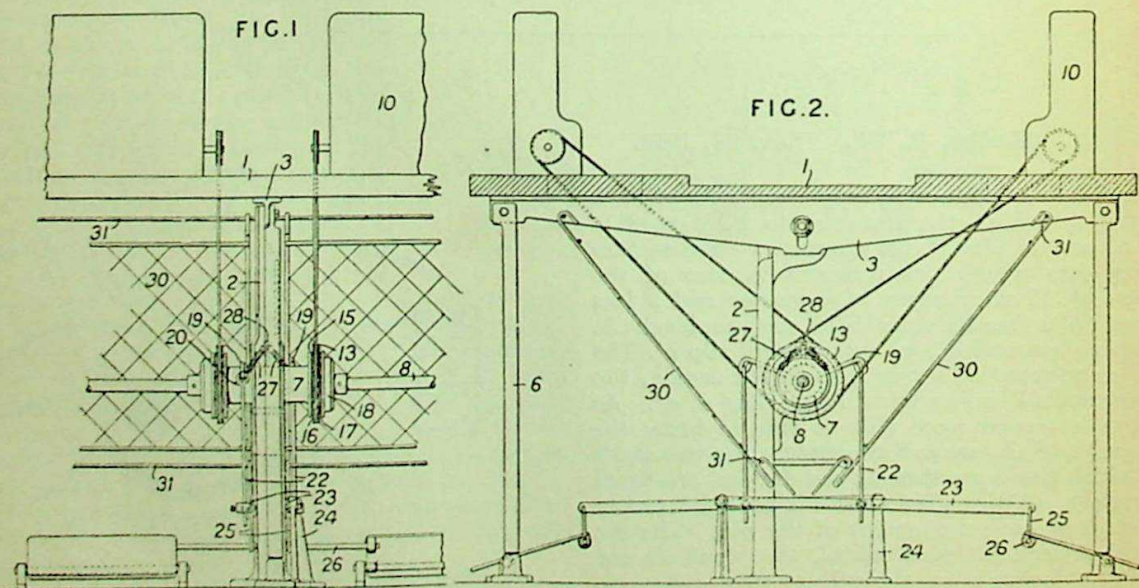
Straw-plait sewing-machines; presser-bars; work-guides.—In a machine for sewing straw-braid together in abutted relation by means of a laterally-vibrating needle 5, the work portions are led to the sewing-point on either side of a vertical dividing plate 13, the fresh strip of braid being held in engagement therewith by a yielding spring-guide 21 to allow of variations in width. The usual work-plate 8, 9 is grooved at 10, Fig. 1, to receive the pivot-pin 12 of the dividing-plate 13, which is resiliently held in position on the work-plate by a spring 11 engaging a flat on the pin 12. The guide 21 together with a spring-pressed braid presser 22, Fig. 5, are fixed by a screw 20 to the flat face 19 of an arm 17 pivoted to the usual laterally-adjustable support 15. The end 14 of the plate 13 engages in a slot in the presser-foot 6. The plate 13 and the arm 17, which is normally positioned by a spring detent 29, Fig. 1, can be turned out of position to allow the starting button of a hat to be sewn.

231,627. Fairweather, W., (Singer Manufacturing Co.). Feb. 15, 1924.



Sewing-machines; feed by dogs.—A disc 36 integral with a feed eccentric 13 is radially adjustable upon a driving disc 25 to which it is secured by screwed pins 34 passing through radial slots 37. The disc 25 carries a feed-lift eccentric 22. An adjusting disc 31 is placed between the discs 25, 36 and is pressed towards the latter by radially-split, dished spring discs 28. The adjusting disc has concentric slots 33 through which the pins 34 pass and two eccentric slots 35, one of which engages a bowl 39 on the disc 36. To alter the feed, a pin 44 is pressed inwards to engage one of two peripheral notches 32 in the adjusting disc and the main shaft is then turned to rotate the disc 36. The length of stitch is indicated by a gapped pointer on a scale attached to the balance-wheel. The eccentric 13 rocks a shaft 12, an arm 11 on which actuates the feed-bar 9. The eccentric 22 rocks a shaft 21, an L-shaped arm 19, 20 on which is universally connected to the feed-bar by a link 16 and a tension spring.

231,977. Spencer, G., Spencer, A. B., and Walker, F. E. Feb. 4, 1924.



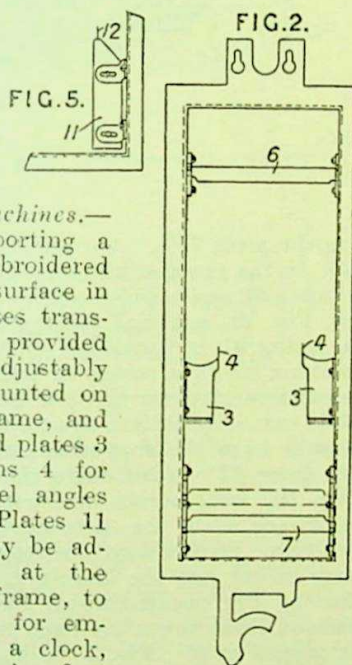
Grouped machines; countershaft gearing for two or more machines.—A work bench 1 carrying a

double row of sewing-machines or the like 10 is supported on central standards 2 on which are

adjustably mounted bearings 7 for a high-speed shaft 8 from which the machines are directly driven through transmitters on the shaft. The bench 1 is carried by beams 3 which are adjustably mounted on the standards 2 and are held rigid by tie-rods 6 which may be utilized as seat-posts. The transmitters are similar to the type described in Specification 139,698 and are arranged in pairs in the members 7. Pulleys 13 are mounted on ball-bearings on sleeves slidable in each member 7 on either side of the bearing for the shaft. Pins 19 on the sleeves pass through cam-slots 20 in the member 7. When rotated by

a treadle-operated link-and-lever system 22 - - 26 the pins 19 act to slide the sleeves axially and press friction rings 17 on the pulleys 13 against driving clutch members 18 keyed to the shaft 8. The pins 19 are either connected by springs 27 to a pin 28 on the member 7 or are connected to each other by a single spring so that on releasing the treadles the pulleys are moved axially into contact with brake-rings 16 carried by flanges 15 on the member 7. Guards 30 of openwork material are carried on rods 31 or engage in recessed lugs or the like on the framework.

232,179. Automaten - Strumpf-Stickerei System Lohse, Akt.-Ges.
April 10, 1924, [Convention date]. Void
[Published under Sect. 91 of the Act].

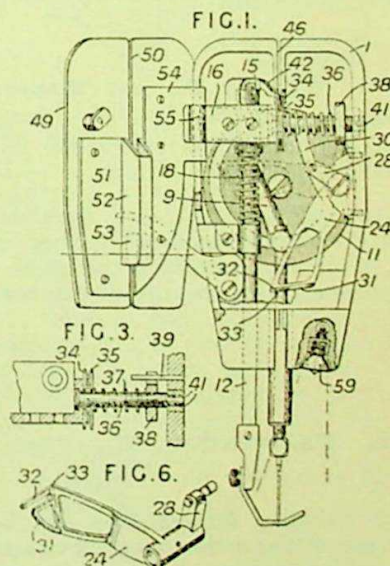


Embroidery machines.—A frame for supporting a stocking to be embroidered generally over its surface in a machine comprises transverse bars 6, 7 provided with pins and adjustably and removably mounted on the sides of the frame, and adjustably mounted plates 3 provided with pins 4 for positioning the heel angles of the stocking. Plates 11 having pins 12 may be adjustably mounted at the lower end of the frame, to receive a stocking for embroidering it with a clock, the lower bar 7 having first been removed.

discs 34, 35 and take-up lever 31. Partition walls are provided to prevent splashing of oil on the thread. A lamp 59 is arranged in the lower part of the head.

Presser-bars.—The presser-bar 12 is stressed by a spring 18 the pressure of which may be adjusted by the turning of a threaded bushing 15 in a bracket 16.

Thread-tensioning devices; threads, controlling otherwise than in stitch-forming.—The tension



discs 34, 35 are mounted on a rod 36 rotatable in the wall of the head by means of a key applied at the end 41 so as to traverse a nut 38 held by a rod 29 against rotation, and thereby vary the tension of the spring 37. A lever 42 is moved by the lifting of the presser-bar to engage and separate the discs 34, 35.

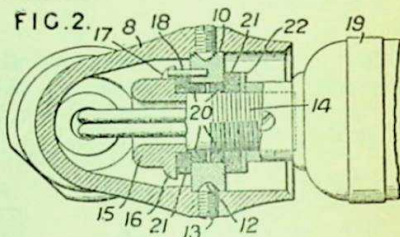
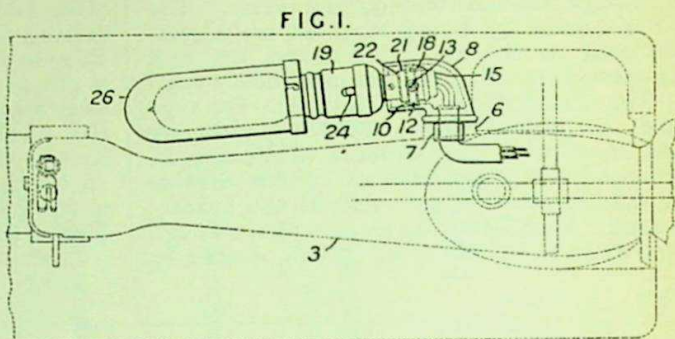
Governing needle-thread.—The take-up comprises a lever 24, 28 actuated by a cam-slot 30 in the discs 11 to which the needle-driving link 9 is pivoted. The thread is engaged by a slot 33, a finger 32 extending at one side of the slot co-operating with a curved edge of the plate 54 to retain the thread in the slot. The cam 30 is so shaped that the take-up does not start to pull up the thread till the needle-eye is above the level of the cloth, but is at its highest point at the top of the needle-stroke.

232,479. Greenwood, C. H. Aug. 18, 1924.

Sewing-machines; frames; illuminating-apparatus.—The sewing-head is formed so that the thread-tension, thread-guide and take-up are entirely enclosed therein. The end-face of the head 1 is open and is covered by a cover-plate 49 hinged at 55. This cover-plate is divided by a slot 50, the two parts being connected by a plate comprising lateral parts 51, 54 and a central U-shaped part 52 in which is a thread-guide 53. A thread is passed through a slot 46 in the upper part of the head and through the slot 50 and guide 53 to the needle engaging intermediately the tension

232,559. Singer Manufacturing Co., (Assignees of Chason, D. H.). April 18, 1924. [Convention date].

Sewing-machines; illuminating-apparatus. — In means for mounting electric lamps on sewing-machines, the lamp-socket 19 is screwed on a tubular member 14, formed with a head 15 and a flange 16, having a notch 17 engaged by a pin 18 fixed in a ring 10, which is secured by diametrically-opposed set-screws 13, engaging a groove 12 in the ring, in a tubular support 8 having a reduced end 7 disposed in a boss 6 on the arm 3 of the machine, felt, or other cushioning washers 20, 21 being provided between the ring 10 and member 14 and between the opposite faces of the ring 10 and the flange 16 and lamp-socket 19, or an adjacent metal washer 22, respectively. The degree of compression of the washers 21 is adjusted by rotating the lamp-socket 19, a push-switch 24 and reflector 26 being brought into the required position by loosening the screws 13 and rotating the ring 10.



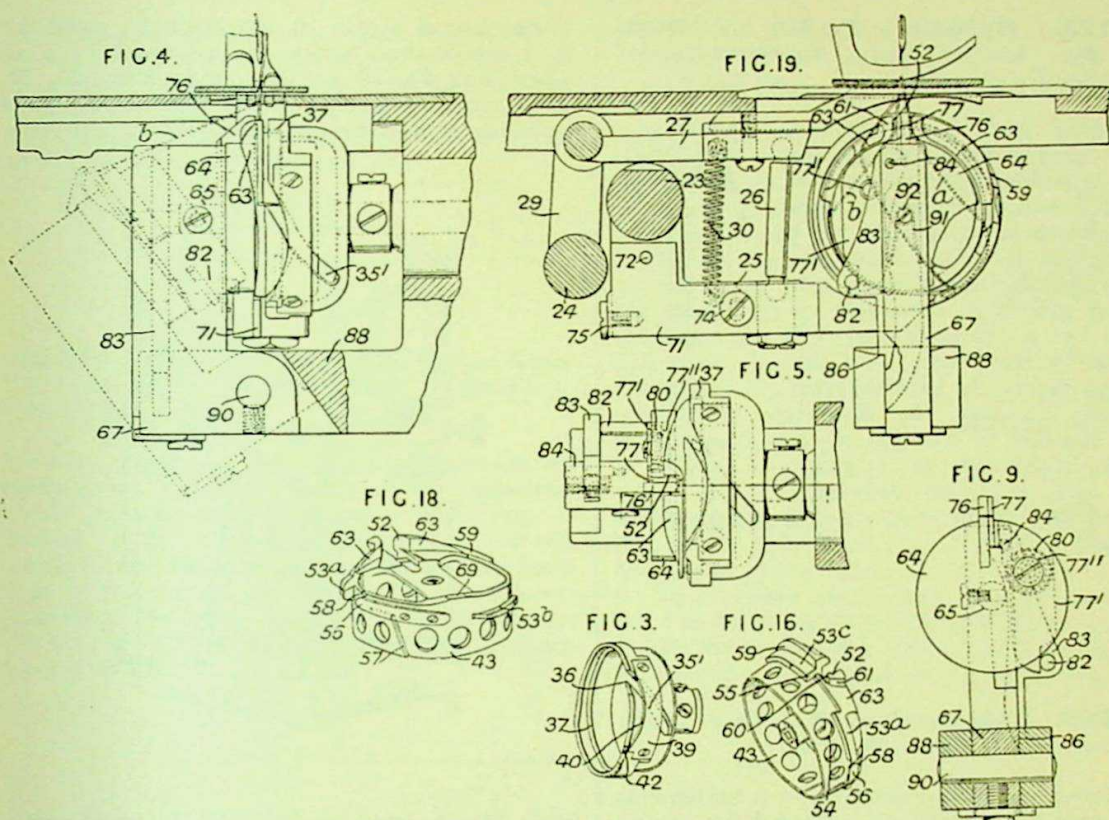
232,609. Graaff, C., and Brase, (née Kruger), E. April 17, 1924, [Convention date]. Void [Published under Sect. 91 of the Act].

Multiple-needle machines. — In multiple-needle chain-stitch sewing-machines having needles arranged in the line of stitching the length of feed is made greater than the distance between the needles.

232,896. Fairweather, W., (Singer Manufacturing Co.). Feb. 26, 1924.

Sewing-machines; lock-stitching by hooks. — Rotation-restraining means mounted on a movable bobbin-case support can be manually expanded within a bobbin-case notch to seize the bobbin-case for removal from the raceway of a rotary hook. The bobbin-case 43 is mounted within an open raceway 37, Fig. 3, in the hook, and has lateral peripheral flanges 63, Fig. 18, which rest on a disc 64, Figs. 4 and 5, carried by a member 67, which is pivoted at 90, Fig. 4, in a support 88, Fig. 19, on the bed of the machine. An arm 71, pivoted to a feed-lift actuating-lever 25 at 72 and adjustably fixed thereto by screws 74, 75, engages underneath the bobbin-case and lifts it periodically from the disc 64. The disc 64 carries a pin 65 adjustably fixed in a hole in the member 67, Fig. 9, and a lug 76 which loosely engages in a notch 52 in the bobbin-case. A lug 77 on a lever 77, which is pivoted at 77¹¹, Fig. 9, to the member 67, also engages in the notch 52 and is normally pressed against the lug 76 by a spring 80 surround-

ing the pivot 77¹¹. A lever 83 pivoted at 84 in a slot in the member 67 carries a pin 82 and has a notch 86 at its lower end to rest on the support 88, Fig. 19, and lock the member 67 in position. A spring 91 is positioned within the slot in the member 67 by a screw 92 which also acts as an adjustable stop for the pin 65. When the lever 83 is manually shifted against the spring 91 to disengage from the support 88, the pin 82 actuates the lever 77¹¹ to separate the lugs 76, 77 which grip the bobbin-case and withdraw it from the hook-race when the member 67 is turned out of position. In this way, the under-thread *b*, Fig. 4, may be cut and the bobbin replaced without disturbing the needle-thread. The hook, which is rotated three times for each needle-reciprocation, is gapped at 35¹, Fig. 3, to form a beak 36 which has a transversely-convexed outer surface and the heel of which is formed with a loop-arresting notch 42. A bridge-piece 39 over the gap 35¹ is spaced from the hook and has a concave edge 40, Fig. 5, which deflects the work-limb of the needle-loop over the outer face of the bobbin-case. The bobbin-case has three sectional race-flanges 53^a, 53^b, 53^c, the first of which has the usual loop-detaining hook 54, Fig. 16, while the last prevents the escape of the limb *a*, Fig. 19, until the hook-gap passes the end 55 thereof, Fig. 16. A guard-flange 59 protects the beak 36 from re-seizing the needle-loop, which is ejected from the notch 42 by the periphery of the flange. An adjustable tension spring 56 bears on the bobbin-thread between the threading slots 57, 58 from which the thread passes through the notch 52, one wall of which is formed with a ledge 60 to guard the thread against seizure by the beak 36. An undercut loop-detaining horn 61 holds the loop until the limb *a* has passed through the notch 52, and so prevents



twisting of the loop. A raised surface 69, Fig. 18, on the bobbin-case rests against the disc 64 to provide thread-clearance therebetween.

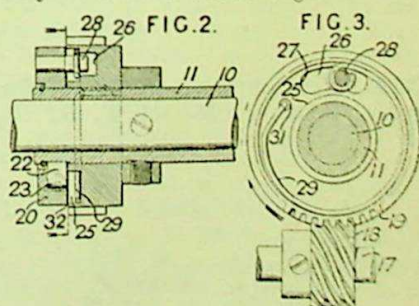
Feed by dogs. — A feed-bar 27, Fig. 19, is

pivoted to an arm 29 of a feed-advancing rock-shaft 24, and is connected by a ball-ended link 26 and by a spring 30 to an L-shaped arm 25 on a feed-lift rock-shaft 23.

232,897. Fairweather, W., (Singer Manufacturing Co.). Feb. 26, 1924. Drawings to Specification.

Sewing-machines; lock-stitching by hooks.—In a machine in which the bobbin-case is independently supported within an open raceway in the rotary hook, the bobbin-case is formed at one side of the usual peripheral gap with a peripheral flange which guards the hook-beak from re-seizing the needle-loop and which has a cam-edge for dislodging the loop from the heel of the beak. The details of construction are similar to those described in Specification 232,896.

through a gear 18, a gear 19 freely mounted on a sleeve 11 which is manually clutched to the shaft 10. Adjacent to the gear 19 is a clutch-ring 20 in which is an eccentric slot for a spring 23 and a clutch roll 22 which engages the sleeve 11. The sleeve may be formed with a slight flat. A bow-



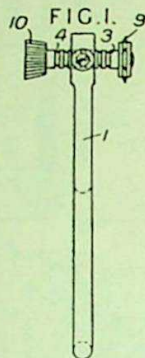
232,923. Singer Manufacturing Co., (Assignees of Grieb, A.). April 24, 1924, [Convention date].

Sewing-machines; driving; starting and stopping gear.—A resilient gear-drive between a motor and a driven shaft comprises a bow-spring located in a groove in a driving member, to which one end is connected, the other end being attached to a pin in a driven member, the movement of the pin being limited by a slot into which it projects and the distortion of the spring being constrained by the wall of the groove. The motor shaft 17 drives,

spring 29, connected at one end 31 to the gear 19 and at the other to a pin 28 projecting from the ring 20, is located in a groove 25 in the gear 19. The pin 28 projects into a slot 26 in the gear. Under abnormal loads the trailing end 27 of the slot engages the pin 28 and takes the strain from the spring. Distortion of the spring when the load suddenly diminishes and the clutch slips is prevented by the outer wall of the groove. A thin washer 32 keeps the spring 23 and roll 22 in place.

233,122. Spindler, F. G., and Bott, G. F. April 15, 1924. No Patent granted (Sealing fee not paid).

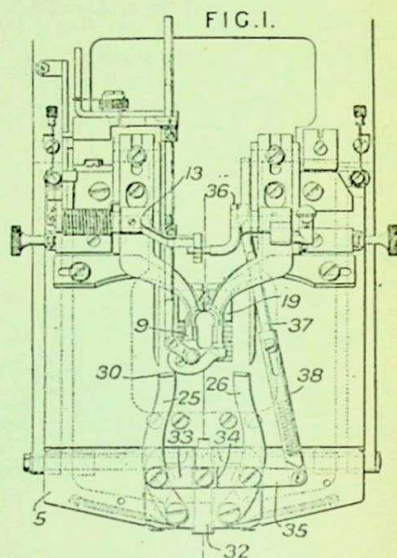
Marking work for sewing.—A rotary hand tool for piercing, ribbing, or similar operation on boot and shoe soles comprises a spindle 3 on which may be mounted a ribbing tool 10 or a piercing tool 9, the spindle being formed with annular grooves 4 selectively engaged by a spring-pressed ball carried by the handle 1 so that the spindle may be adjusted longitudinally to vary the distance from the tool to the side of the handle, which acts as a gauge. The tool may be detachably secured by a spring wire engaging grooves in the tool and spindle.



233,260. Fairweather, W., (Singer Manufacturing Co.). Nov. 26, 1924.

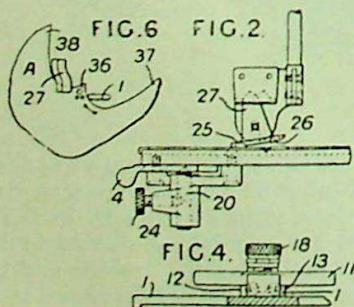
Button-hole sewing-machines.—A button-hole sewing-machine particularly adapted for sewing button-holes in strap-ends is provided with laterally movable work-gauging means which are connected to the work-clamp operating mechanism to be operated thereby prior to the clamping of the work. The upper clamping plates 9 of a clamping device of known type are carried by arms operated in the usual manner by cams on

interconnected shafts 13. A lever 36 projecting from one of these shafts is connected by a resilient link 37, 38 to the gauge arms 25, 26. These arms are pivoted to the transverse plate 5 in which is a slideway which receives a slide-



block 32 connected by links 33, 34 to the arms, the link 34 having an extension 35 connected to the link 37, 38. In the operation of the mechanism to close the clamp the ends 30 of the arms are first moved into contact with the sides of a strap. Adjustable gauge-blocks 19 are provided to position the end of the strap. Specification 141,888 is referred to.

233,394. British United Shoe Machinery Co., Ltd., and Keall, F. B. Jan. 29, 1924.



Sewing-machines; work guides.—An improved edge gauge and presser-foot described as applied to a machine of the type set forth in Specifica-

tion 22884/04, [Class 17, Boots &c.], for punching ornamental perforations in toe-caps is applicable to sewing-machines. The edge gauge 1, Fig. 6, and the presser-foot 27 may be moved to either side of the link of work feed indicated by the arrow so as to enable a peaked toe-cap A to be punched with a central hole 36, perforated from that hole to the side 37 of the cap, and then from the central hole to the side 38. The edge gauge 1 has guide edges 12, 13 and a bar 11 adjustable by a screw 18 to rest on the work-piece. The gauge is adjustably carried on a slide pin-connected to a pivoted hand-lever 4. To adjust the length of stroke of the slide an arcuate slot engages the top of a conical-ended stop 20 which may be projected farther into the slot by turning a knob 24. The presser-foot lever 27 carries two presser-feet 25, 26, and either is held in operative position by a spring detent. In operation, the left-hand edge of the edge gauge and the presser-foot 25 are positioned

on either side of the link of work feed while the toe cap is perforated from hole 36 to the end 37, the edge gauge is then adjusted so that its right-hand edge guides the work, and the presser-foot 26 is made operative while the piece is perforated from hole 36 to the end 38.

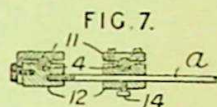
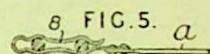
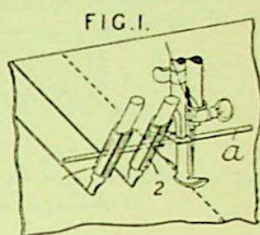
233,636. Fairweather, W., (Singer Manufacturing Co.). Feb. 26, 1924. Drawings to Specification.

Sewing-machines; lock-stitching by hooks.—A bobbin-case which is independently supported within an open raceway in a rotary hook is formed with a rotation-restraining notch, bounded, on the side last passed by the hook-beak in seizing the needle-loop, by an undercut needle-loop detaining horn. The details of construction are similar to those described in Specification 232,896.

233,714. Krebs, F. May 6, 1924, [Convention date]. Void [Published under Sect. 91 of the Act].

Sewing - machines; marking - attachments.

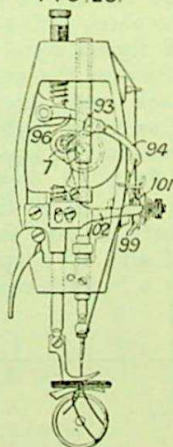
Chalk-holders are mounted on a bar adjustable secured to a presser-foot or bar to provide for marking the work during the stitching, for the purpose of subsequent operations. The holders may be in the form of split resilient sleeves 1, 2, Fig. 1, mounted on a rod *a*. In a modification, Fig. 5, the chalk rods 4 are held in a spring clip 8. In a further modification, Fig. 7, one chalk rod 4 is held in a clamp 11, 12 fixed on the rod *a*, and the other rod is held in a clamp secured on the rod *a* in adjusted position by a screw 14.



233,812. Fairweather, W., (Singer Manufacturing Co.). Feb. 26, 1924.

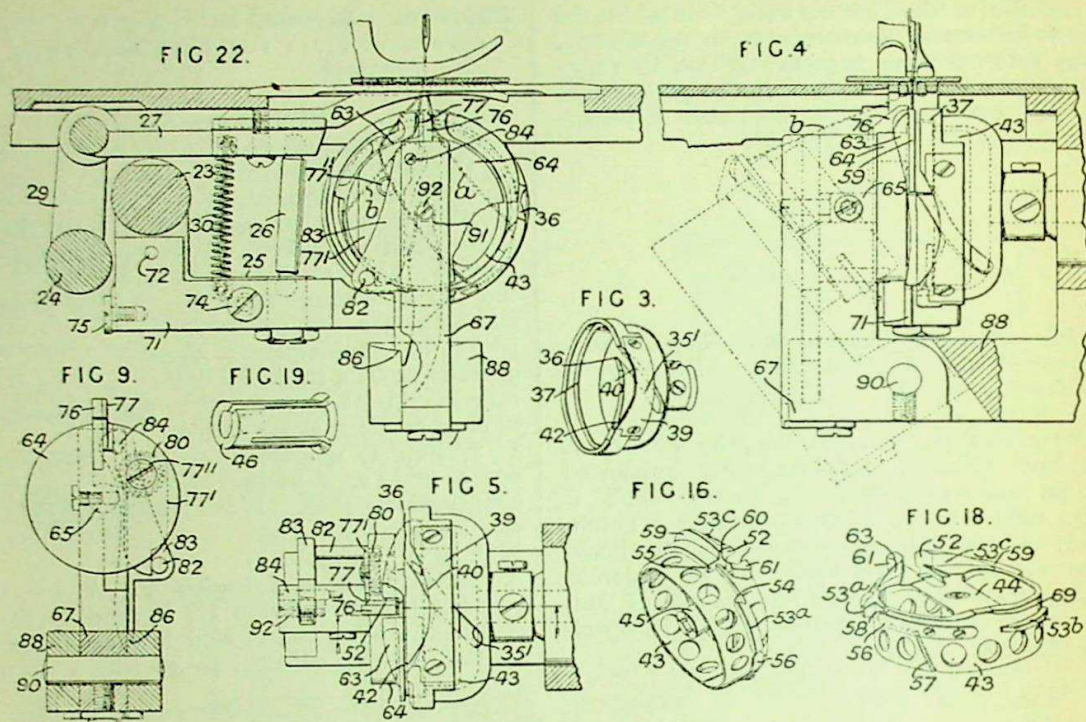
Sewing-machines; lock-stitching by hooks; governing needle thread.—A bobbin-case of greater capacity than usual is supported within a rotary hook by a stationary support on which it rests and from which it is lifted periodically, because of its increased weight, to allow the passage of the needle-loop. The bobbin-case 43, Fig. 3, is mounted within an open raceway 37, Fig. 3, in the hook and has lateral peripheral flanges 63, Fig. 18, which rest on a disc 64, Figs. 4 and 5, carried by a member 67 which is pivoted at 90, Fig. 4, in a support 88, Fig.

FIG. 29.



22, on the bed of the machine. An arm 71 pivoted to a feed-lift actuating-lever 25 at 72, and adjustably fixed thereto by screws 74, 75, engages underneath the bobbin-case and lifts it periodically from the disc 64. The disc 64 carries a pin 65, Fig. 4, adjustably fixed in a hole in the member 67, Fig. 9, and a lug 76 which loosely engages in a notch 52¹, Fig. 5, in the bobbin-case. A lug 77 on a lever 77¹, which is pivoted at 77¹¹, Fig. 9, to the member 67 also engages in the notch 52 and is normally pressed against the lug 76 by a spring 80 surrounding the pivot 77¹¹. A lever 83 pivoted at 84 to a slot in the member 67 carries a pin 82 and has a notch 86 at its lower end to rest on the sup-

port 88, Fig. 22, and lock the member 67 in position. A spring 91 is positioned within the slot in the member 67 by a screw 92 which also acts as an adjustable stop for the pin 65. When the lever 83 is manually shifted against the spring 91 to disengage from the support 88, the pin 82 actuates the lever 77¹ to separate the lugs 76, 77 which grip the bobbin-case and withdraw it from the hook-race when the member 67 is turned out of position. In this way, the under-thread *b*, Fig. 4, may be cut and the bobbin replaced without disturbing the needle-thread. The hook, which is rotated three times for each needle-reciprocation, is gapped at 35¹, Fig. 3, to form a beak 36 which has a transversely-convexed outer surface and the heel of which is formed with a loop-arresting notch 42. A bridge-piece 39 over the gap 35¹ is spaced from the hook and has a concave edge 40, Fig. 5, which deflects the work-limb of the needle-loop over the outer face of the bobbin-case. The bobbin-case bridge 44, Fig. 18, carries a tubular pin 45, Fig. 16, within which is expanded a longitudinally split and slotted hollow pin 46, Fig. 19, by a taper-headed screw. The pin 46 is tapered flanged outwardly at the free end to retain the bobbin. The bobbin-case has three sectional race-flanges 53^a, 53^b, 53^c, Fig. 18, the first of which has the usual loop-detaining hook 54, Fig. 16, while the last prevents the escape of the limb *a*, Fig. 22, until the hook-gap passes the end 55, Fig. 16, thereof. A guard-flange 59 prevents the beak 36, Fig. 3, from re-seizing the needle-loop, which is ejected from the notch 42 by the periphery of the flange. An adjustable tension spring 56, Fig. 18, bears on the bobbin-thread



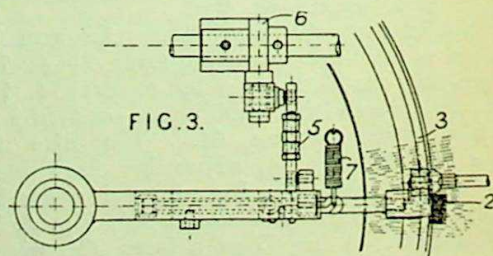
between the threading slots 57, 58, from which the thread passes through the notch 52, one wall of which is formed with a ledge 60 to guard the thread against seizure by the beak 36. An undercut loop-detaining horn 61 holds the loop until the limb *a* has passed through the notch 52 and so prevents twisting of the loop. A raised surface 69 on the bobbin-case rests against the disc 64 and provides thread-clearance between the case 43 and the disc 64 for most of the circumference. A take-up 93, 94, Fig. 29, is actuated by a crank 7 and anchored by a link 96. It acts in conjunction with a tension 99 and a light check-spring 101, which normally rests on an arm 102 of the presser-bar, the position of which varies in accordance with the work thickness. The take-up does not start until the

needle has risen more than $\frac{5}{16}$ ths of an inch above the work-plate to allow of sewing work of any thickness without adjustment. The stitch is set before the needle starts its downward motion and before the take-up reaches its upper limit, and further movement of the take-up first lifts the check-spring to its upper limit and then pulls off thread equal to that used in the last stitch, whatever the work-thickness. The take-up gives slack very early in the needle-descent, thus allowing of working on thick material without increasing the needle-stroke.

Feed by dogs.—A feed-bar 27, Fig. 22, is pivoted to an arm 29 of a feed-advancing rock-shaft 24, and is connected by a ball-ended link 26 and by a spring 30 to an L-shaped arm 25 on a feed-lift rock-shaft 23.

234,115. Köhler, J., [Firm of]. May 17, 1924, [Convention date].

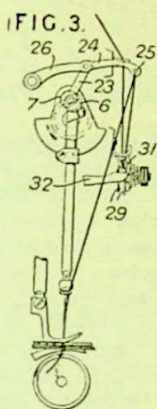
Knitted-fabric sewing-machines. — The point ring 3 is rotated at a uniform rate and the radially operated needle 2 is moved circumferentially at the same rate while in the work by a cam device. The needle-frame is connected to a rod 5 operated by a cam 6 formed for two-thirds of its circumference as an archimedean spiral by which the needle is displaced against the tension of a spring 7, the remaining third of the circumference being formed to allow the steady return of the needle frame to zero position. The stitch-



ing strokes of the needle may be effected by any suitable mechanism.

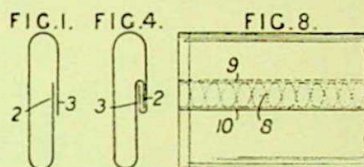
234,261. Fairweather, W., (*Singer Manufacturing Co.*). May 3, 1924.

Sewing-machines; lock-stitching by hooks; governing needle thread.—A take-up of the kind comprising an arm operated by a crank and pivoted to an anchor link is arranged to draw up the needle-loop to the work before the needle begins its down stroke, and to give slack before the needle has descended through a distance equal to the distance between its eye and point. The take-up comprises a bent arm 23, 24 connected to a crank pivot 7 lying outside and slightly to the rear of the pivot 6 of the needle-bar actuating crank. A link 26 connects the arm 23, 24 to the frame. The needle-thread passes through a tension device 29 and under a check-spring 31 before passing through the eye 25 of the take-up. An arm 32 extends below the spring 31 to limit



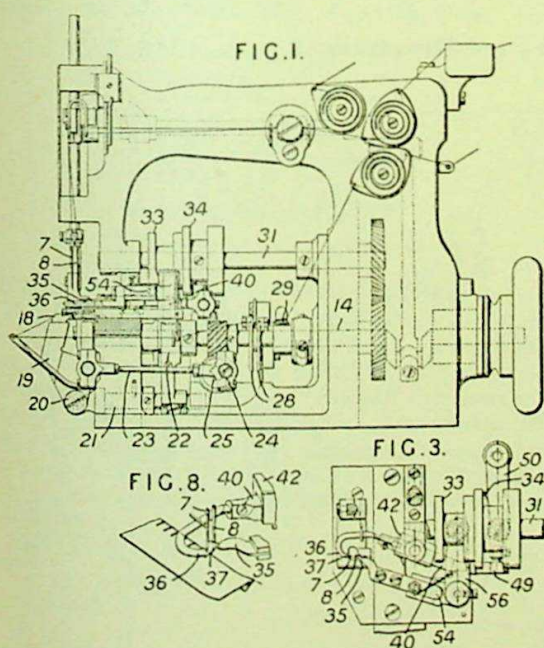
its movement and is adjustable in accordance with the thickness of the work. The take-up is employed in conjunction with a rotary book making three revolutions to one reciprocation of the needle. Specification 233,812 is referred to.

234,290. Liverpool Jute Bag Co., and Hill, R. June 10, 1924.



Seams.—The longitudinal edges of sacks are seamed by overlapping the edges 2, 3 with or without folding them, and running a line or line of stitching 8 of undulating or zig-zag form along the overlapped portion. Additional lines 9, 10 of straight stitching may be added.

234,404. Singer Manufacturing Co., (*Assignees of Becker, R.*). Nov. 29, 1924, [*Convention date*].

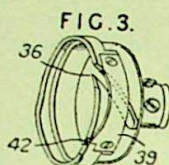


Multiple-needle machines; hat-sewing machines.—A twin-needle sewing-machine is provided with

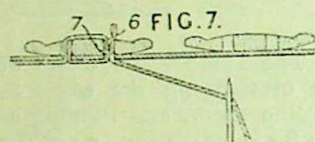
loop-spreaders mounted on one side of the needles above the work-plate of the machine and actuated in approximately rectilinear paths to spread the loop of one needle for entrance by the other. In the machine described needles 7, 8 cooperate with a threaded looper 18 mounted in a carrier 19 pivoted at 20 on a rock-shaft 21 actuated by an eccentric 22 on the main shaft 14. The loop-engaging movements of the looper are effected by a link 23 ball-connected to the carrier 19 and to a crank 24 on a cross-shaft 25 gear-driven from the main shaft. The under-thread is governed by a rotary take-up 28 and thread-nipper 29. The spreaders by which a loop of thread of the needle 7 is presented for entrance by the needle 8 consist of a hooked member 36 having a notch 37 by which the thread is moved into position for detention by a hook on a member 35. The shank of the member 36 passes in rear of the needles and is mounted in a bar 40 having a sliding movement in a block 42 pivoted in brackets. The rear of the slide 40 is ball-connected at 49 to a lever 50 oscillated by a cam 34 on a shaft 31 driven at the same speed as the shaft 14. The member 35 is mounted on a horizontal pivot 54 carried by a bell-crank lever 56 actuated by a cam 33. A free space provided above the slide 40 and the pivoted mounting of the member 35 allow the two members to be sufficiently lifted by the presser-foot when it is raised. A guide for a sweat band and a folder and guide for a strip and enclosed wire may be provided. Specification 17322/00 is referred to.

234,746. Fairweather, W., (*Singer Manufacturing Co.*). Feb. 26, 1924.

Sewing-machines; lock-stitching by hooks.—In a sewing-machine of the kind described in Specification 233,812, the beak 36 of the rotary hook is formed with a loop-arresting heel 42 and a transversely-convexed external surface, adjacent to the concave loop-deflecting edge of the bridge-plate 39.



234,800. Haenicke, A. May 30, 1924, [Convention date].



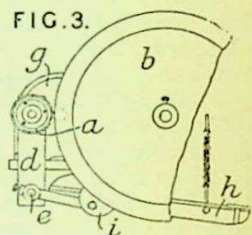
Stitches.—Stitches for sewing buttons on to cards are formed by passing one loop 6 through the work and into a second loop 7 passed through the work so that the second loop is locked.

The Specification as open to inspection under Sect. 91 (3) (a) comprises also the use of the stitch for any purpose, the distance between stitches being variable. This subject-matter does not appear in the Specification as accepted.

234,861. Pinckney, V. A. Jan. 3, 1924.

Sewing - machines; stopping-gear, automatic.

—A friction drive for a sewing - machine comprises a friction wheel *a* coupled directly or through gearing with the driving shaft of an electric &c. motor *g*, the motor, friction wheel, &c. being mounted on a frame *d* which may be rocked about a pivot *e* against spring or gravity resistance by a pedal &c. *h*. A brake *i* adjustably connected to rock with the bracket is fitted so as to be automatically engaged with the spindle pulley *b* when the pedal &c. is released. The bracket &c. may be arranged to slide instead of rock. The electric motor may be replaced by a belt &c. drive.

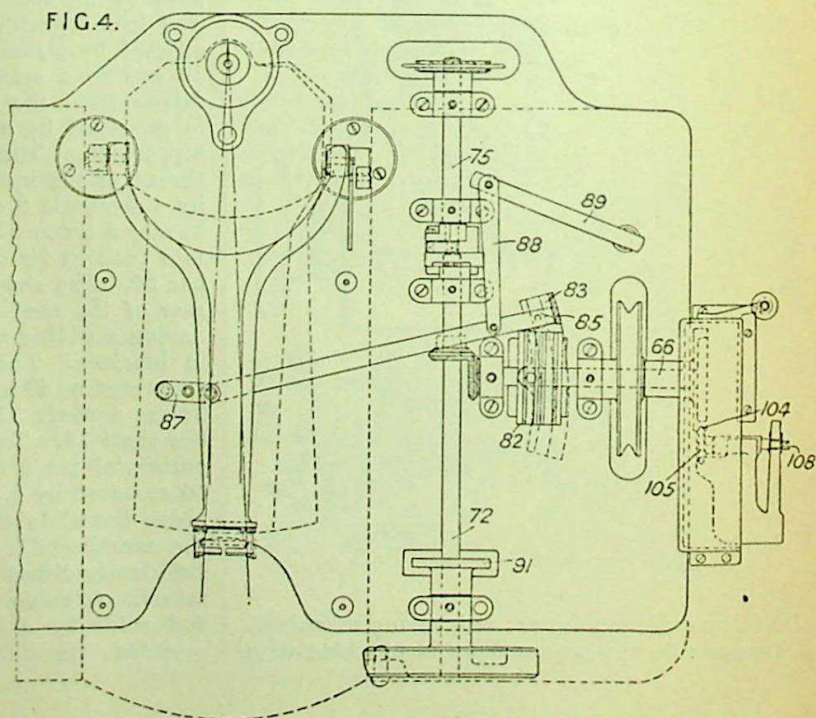


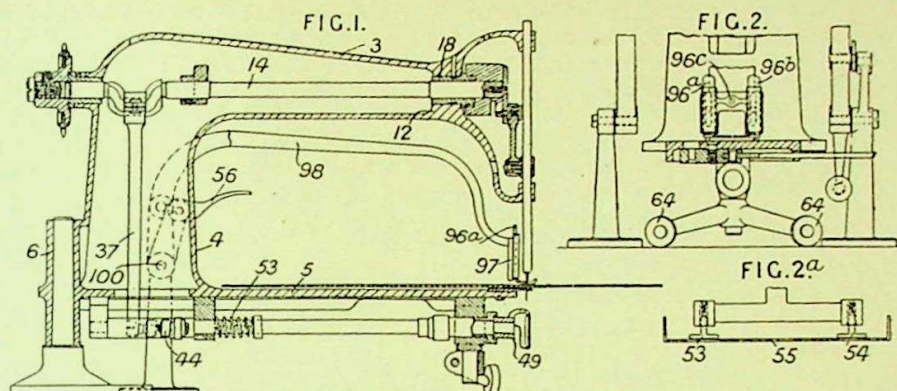
235,060. Universal Art Stitch Machine, Ltd., and Bingham, J. Sept. 19, 1924.

Sewing-machines; lock-stitching by hooks; needles, vibrating laterally; frames.

—In machines of the type in which the frame carrying the stitch-forming mechanism is oscillated from side to side relatively to a stationary work-plate, the horizontal arm 3, the vertical support 4, and the base plate 5 are made as an integral structure with the pivot bearing 6. The main shaft 14 is journaled in a bearing 18 seated in a partition 12 formed in the arm 3. The under-thread mechanism comprising a hook 49 is actuated from the shaft 14 by a connecting rod 37 which oscillates a sleeve 36 rotatably mounted on a shaft 41 and having a slotted arm 44 in which slides and turns a pin 45 projecting from an arm 46 on the under-shaft 47. The shaft 47 is mounted to

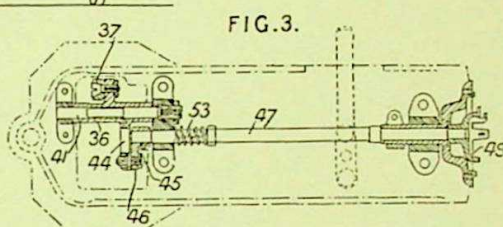
FIG. 4.





move against the pressure of a spring 53 to allow it to clear the work. The frame is supported at its sewing end by rollers 64 or by feet 53, 54 sliding on a plate 55. The machine is driven from a shaft 66 geared to a shaft 72 which is connected by a drag-link connection to a shaft 75 chain-gear to the shaft 14. The feed mechanism is actuated by a cam 91. The swinging-movement of the machine is effected by a cross-over cam 82 or equivalent device which moves a segmental guide 83 linked to the machine at 87. A block 85 is adjustable in the guide by means of a linkage 88, 89 manually actuated to vary the throw.

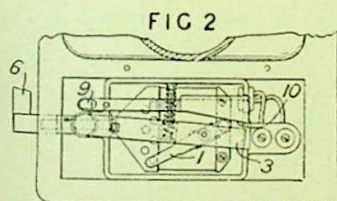
Presser-bars: presser-feet.—Presser-feet are carried by slidable members 96^a, 96^b, connected



by a member 96^c pivoted to an adjustable end 97 on an arm 98 pivoted in supports 100 on the machine base and movable by a hand-lever 56.

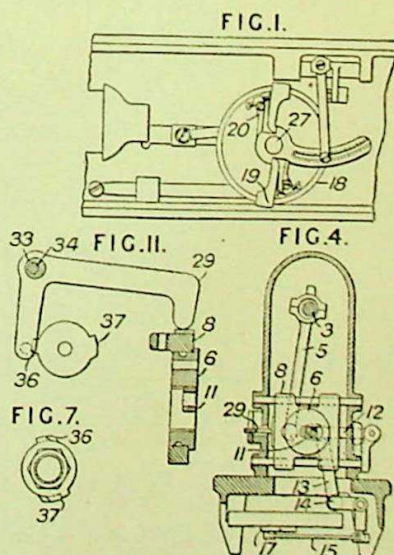
Spools and the like, winding.—Spools to be wound are placed on a split spindle 108 rotated by a friction wheel 105 which may be brought into contact with a wheel 104 on the shaft 66. Specification 171,861 is referred to.

235,399. Singer Manufacturing Co., Ltd., and Corral, H. June 28, 1924.



Sewing-machines; driving.—An adjustable stop in the form of a wedge 10 is arranged to limit the movement in one direction of a spring-stressed actuating lever 3 which moves a rheostat arm 1. The arm 3 is moved by connections with a knee-shift lever 6. The wedge 10 carries a block 9 which may slide and be clamped in a slot in the cover-plate of the control mechanism. Specifications 185,024 and 186,798 are referred to.

pawl device 19, 20. This is effected by an adjustable cam 36 on the shaft 27 of the cam 18 which causes the shortening of a lever-arm in the system of links through which the driving-



235,774. Hennig, A., and Anker-Werke Akt.-Ges. Nov. 18, 1924.

Button-hole sewing-machines.—The feed of work is automatically reduced to space the barring stitches closer together than the side stitches by reducing the feed movements of the feed-actuating cam 18 conveyed to it by the known

shaft 3 actuate the pawls 19. An eccentric-rod 5 driven by the shaft 3 is pivoted to a disc 6 rotatably mounted on a slide 8. A block 11 slidable in the slot in the disc is pivoted to a radius link 12 and to a link 13 pivoted to a bell-crank lever 14 adjustably connected through a link 15 and slotted arm 17 to the pawl device. The cam

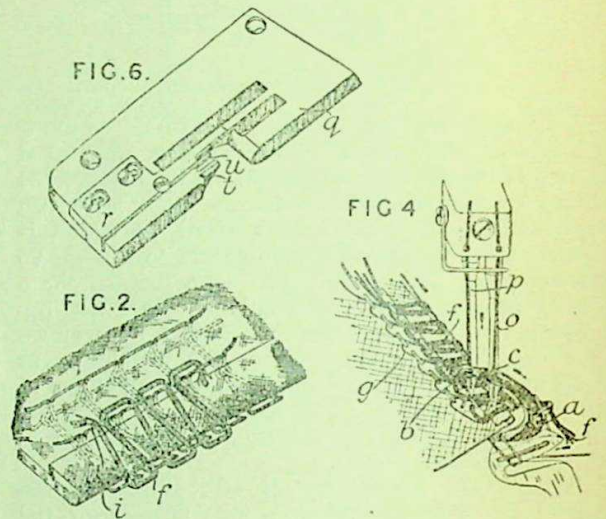
comprises two similar members which may be relatively displaced to vary the length of the operative part 37 in accordance with the length of the bar desired. A stud on a lever 29 bears on the cam, the other end of which rests against

the slide and displaces it against the action of a spring to vary the length of the lever-arm actuating the link 13. The feed may also be varied by manually rotating the eccentric pivot mounting 33, 34 of the lever 29.

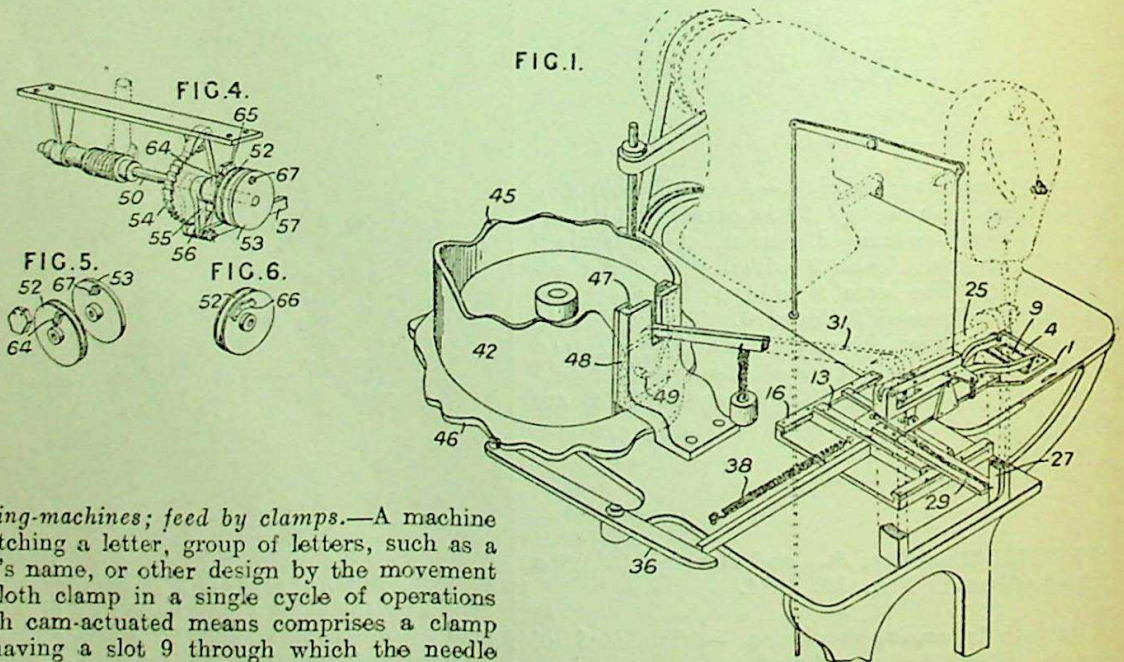
235,866. Union Special-Maschinenfabrik Ges. June 18, 1924, [Convention date].

Stitches and seams; multiple-needle machines; loop-stitching.—An over-edge stitch is formed by the employment of an upper threaded looper which carries a number of separably guided threads arranged in sets, each set being stitched down by the needle thread so that the separate threads lie side by side. The needle threads are concatenated below the work with the thread of a lower threaded looper. In the seam shown in Fig. 2 a set of threads *f* is stitched down by the thread *i* of one of a pair of needles, the other needle forming a straight seam. In another arrangement two sets of threads *f*, *g* supplied through sets of eyes *b*, *c* in the upper looper *a* are tied down by the needle threads *o*, *p*. A single needle may be used.

Work-supports.—Stitch fingers *t*, *u* are employed to assist in the formation of the stitch and are mounted on a plate *r* adjustable in the work-plate *q*, the finger *u* being adjustable on the plate *r*.

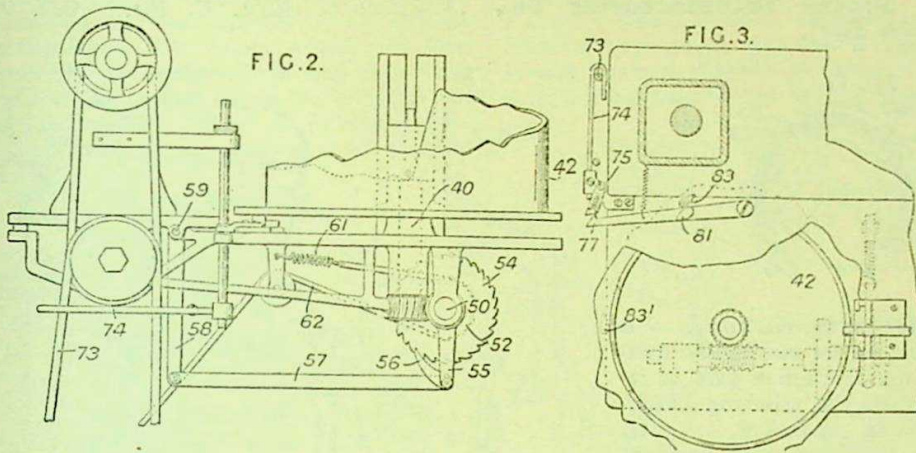


236,051. Sibbald, C. J., Sibbald, C. T. A., and Sibbald, J. O. July 17, 1924.



Sewing-machines; feed by clamps.—A machine for stitching a letter, group of letters, such as a maker's name, or other design by the movement of a cloth clamp in a single cycle of operations through cam-actuated means comprises a clamp 1, 4 having a slot 9 through which the needle operates, moving along two directions at right-angles by connections with cam-profiles 45, 46. The clamp is pivotally mounted on a block slid-

CORRESP TO U.S. 1575285 (78)
ALSO SEE U.S. 1603644 (212)

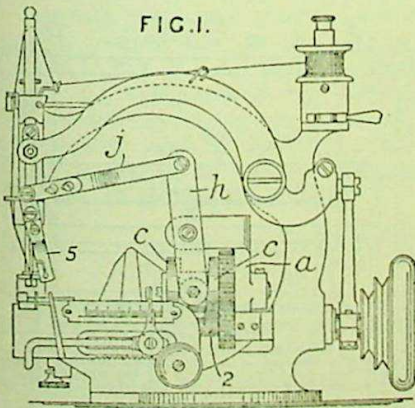


able in guides 13 and moved against a spring 29 by a lever 27, 25, 31 actuated by the cam 45. The guides 13 are moved in guides 16 against the action of a spring 38 by a lever 36 engaging the cam 46. The lever 31 rests on a block 48 sliding in guideways 47 and carrying a roller 49 which engages the cam profile. The cam-shaft 49 is driven from the oscillating feed-shaft 59 of a sewing-machine through mechanism comprising a lever 58, a link 57, and a lever 55 carrying a pawl 56 which engages a toothed wheel 54 on a shaft 50 driving the shaft 50 through a worm. Means are provided for manually moving the shaft 40 and the cam cylinder 42 to a starting position without the movement of the sewing-feed. A loose-pulley 52 on the shaft 50 receives a belt 62 connected at one end to a spring 61 and at the other to a treadle. A disc 53 fast on the shaft 50 has a stud 67 which is engaged by a spring pawl 66 on the pulley when it is positively rotated, so that the disc and shaft are carried round until a stop 64 on the pulley con-

tacts with a fixed stop 65, the cam element being then in zero position. When the treadle is released the pulley is reversely rotated by the action of the spring 61 till the stop 64 contacts with the opposite side of the stop 65. When the distance through which the cam must be moved to zero varies, different stops 65 are employed, and when it is desired to turn the cam through a considerable angle two pawls 66 are mounted on the pulley.

Starting and stopping gear.—Stopping gear actuated by the cam comprises a belt lever 74 which is acted on by a spring so as to tend to move the belt 73 on to a loose pulley. This is normally prevented by a catch 75 engaged by a latch 77. A lug 81 on the latch is engaged by a lug 83 on the pattern cam to trip the latch. Where trade names of more than one word are to be stitched a second stop lug 83' is provided, the cam being moved by hand and the machine restarted after the first stoppage.

236,381. Goodwin, H. July 11, 1924.

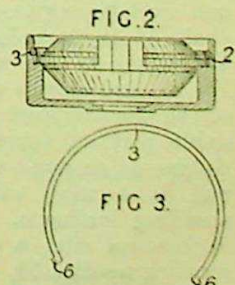


Straw-plait sewing-machines; cords and the like, attaching.—Silk or other material is waved on to a straw or like hat simultaneously with the sewing up thereof. A standard a, fitted to the machine, carries a cam-cylinder c, which is

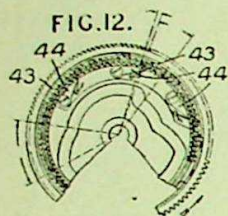
driven from the main-shaft 2 and which oscillates through a lever h and an adjustable link j a guide-arm 5. The arm 5 may be pivoted in front or in rear of the needle.

236,843. Nasmith, J. W. Feb. 6, 1925.

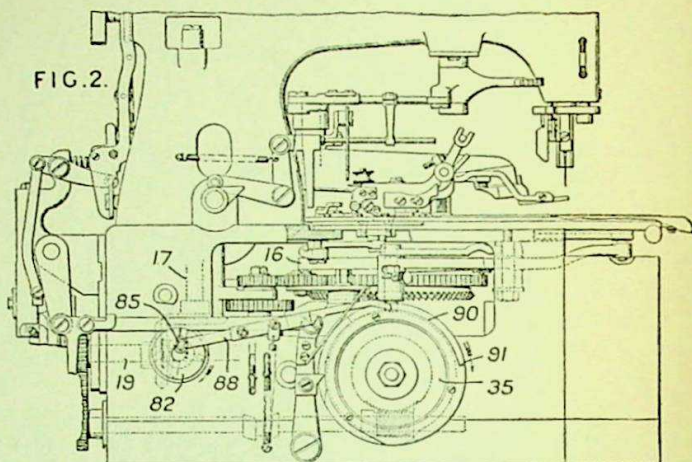
Sewing-machines; lock-stitching by hooks.—A spool case is retained within a rotary or oscillating hook by means of a spring member 3, which engages a groove 2 in the hook body and is further retained by the hooked extremities 6 which enter holes. The member 3 may be removed by the application of an instrument to one of the hooked extremities.



236,844. Singer Manufacturing Co., (Assignees of Allen, E. B.). Oct. 9, 1924,
[Convention date].



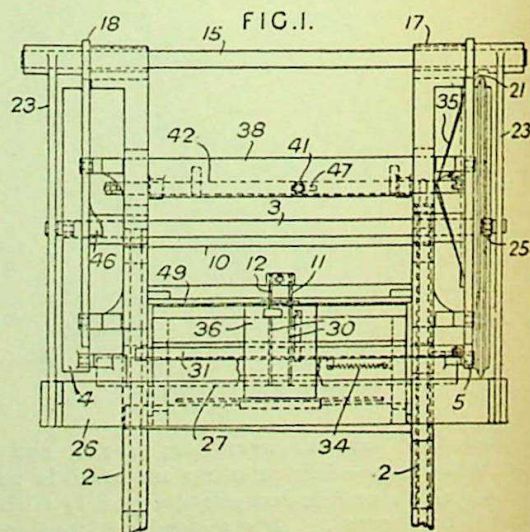
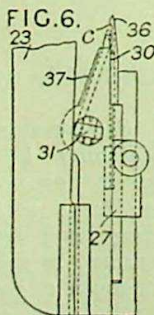
Button-hole sewing-machines. — A device is provided for moving the feed-wheel suddenly through a part of its revolution while the stitching mechanism is still in operation, so that, according to the particular arrangement chosen, the stitches may be spaced widely apart, the button-hole may be turned through 90° between stitches to produce a straight button-hole with a bar or 180° to produce a straight button-hole without a bar. The machine is described as applied to a machine of the type described in Specification 183,873. The feeding of the work is controlled by a feed-wheel 16 and a synchronously moving pattern wheel 35, means being provided to transfer the control of the side-shifting movements of the work-clamp from the wheel 35 to the wheel 16 during the sewing of the eyelet-end of the button-hole. The wheels 16, 35 are driven by a star-wheel moved step-by-step by a shaft 17 geared to the sewing shaft and interposed in the driving connections are a ratchet and pawl device 43, 44 which allow the wheels 16, 35 to be driven temporarily at a greater speed than they would by the star-wheel. Rapid feed mechanism of known type is provided. A crank disc 82 having a slot in which is fitted the head



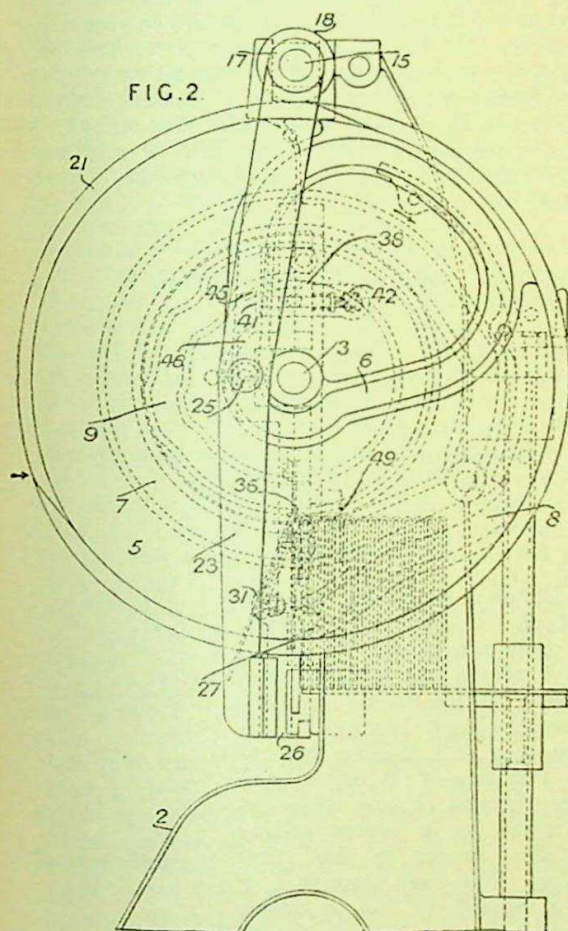
of a crank-pin 85 is driven by the sewing shaft 19, and continuously oscillates a pawl 88, the end of which rests on a toothed ring 90 mounted on the pattern wheel 35. In the arrangement described the ring 90 has a single tooth 91. As the pattern wheel rotates the pawl 88 reciprocates idly upon it until the tooth 91 is reached, when it gives the pattern wheel a sudden movement forward, this point coinciding with a point in the button-hole where it is desired to turn the stitching abruptly through a 90° or 180° to produce a bar or to commence the stitching of the other side of the button-hole without stopping the machine. By employing a ring 90 with a number of teeth the spacing of the stitches around the eye of a button-hole may be increased. Specifications 179,278 and 197,463 are referred to.

237,193. Stäubli & Co., Geb. Nov. 20, 1924, [Convention date].

Book-stitching machines. — Cam-discs 4, 5 at the ends of a book-stitching machine shaft 3, Fig. 1, directly actuate the stitch-forming, thread-handling and work-supporting means. A shaft 15 is journaled in blocks 17 guided in the standards 2, Fig. 2, and carries the arms 23 of the work-support 26, 36. The saddle-plate 36 supports the signatures at an angle of about 35° and is formed with a loop-shedding incline *c*. The saddle is provided with a cover-plate 37, Fig. 6. Perforating needles 30, carried by a bar 27 mounted in the support 26, are vertically reciprocated in grooves in the plate 36 from cam-grooves 8, in



the cam-discs. A looper-carrying slide 3 is laterally reciprocated in the support 26 by a face-cam 35 on the disc 5, Fig. 1, and a spring 34. The work-support 26 is oscillated to and from the stitching-rail 49 by rollers 25 on the arms 23 engaging cam-grooves 6. When in stitching position, the work-support is raised against the rail

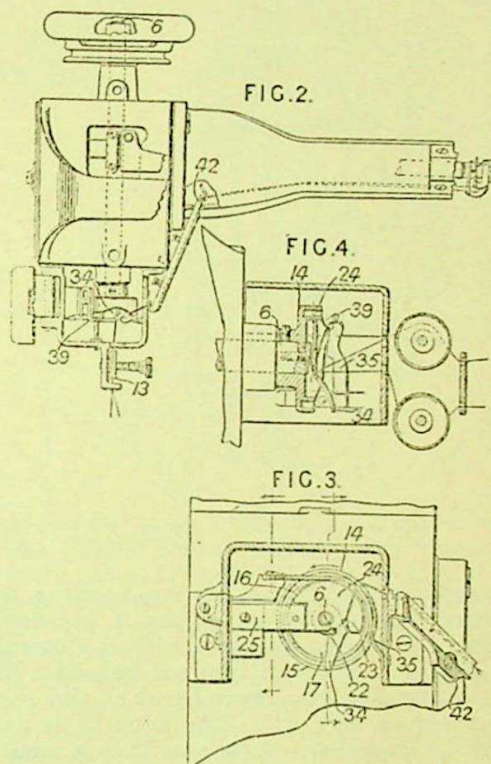


43 by peripheral cams 21 on the discs 4, 5 in conjunction with rollers 18 on the shaft 15. A bar 10 carrying eyed and hooked needles 11, 12 is vertically reciprocated in the standards 2 by cam-grooves 7, Fig. 2. A bar 38, vertically reciprocated in the standards 2 by cam-grooves 9, carries a thread-tensioning pin 41 which is actuated periodically against its spring by a cam-member 47 on a slide 42 reciprocated laterally by face-cams 45, 46 on the discs 5, 4.

237,426. Armstrong, J. J. V., (Union Special Machine Co.). July 23, 1924.

Sewing-machines; double-loop stitching. — A rotary thread control for the looper-thread of a sewing-machine comprises a cylindrical flange across which the thread is led so that on rotation of the flange the thread is displaced in an axial direction relative to the shaft. In the machine shown which employs two needles and two

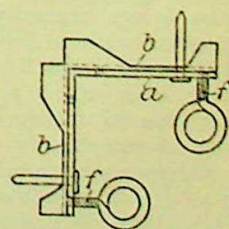
loopers the thread control device is mounted on a shaft 6 which operates the needle-bar through connections of usual type and is mounted transversely in the standard. Secured to the shaft is a cylindrical member 14 having inner and outer



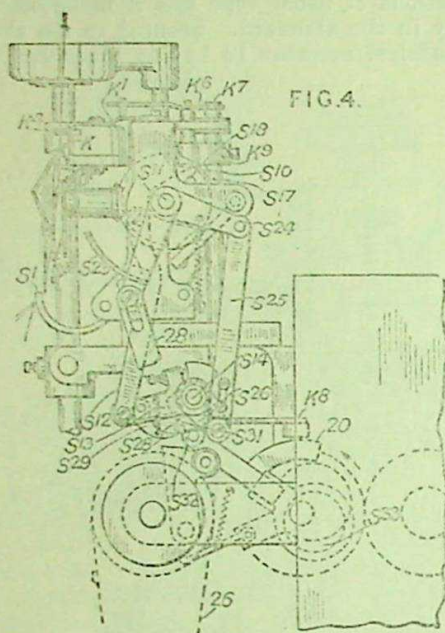
flanges 16, 15 across which the looper-thread is led by guide-members 24, 35. The member 34 comprises a plate mounted on an arm 25 and lying within the inner flange 16. The thread passes from tension discs 13 to the rear of the member 24 and back through slots 22, 23 and is periodically nipped against the back of the plate by a face-cam 17 on the end of the shaft 6. The guide-member of check 35 and a stripper-finger 39 which control the thread in its passage across the cam edges of the flanges 15, 16 are arranged to lie partially within the space between the flanges. The thread passes to the loopers through a channel 42 having a spring-pressed cover-plate.

238,243. Elbern, A. Aug. 9, 1924, [Convention date]. Addition to 230,094. No Patent granted (Sealing fee not paid).

Sewing, work-holders for.—The angle-pieces a described in the parent Specification are provided with an under-piece b or a strip, forming a shield to prevent the screw bolts f from entering the wood of the frame.



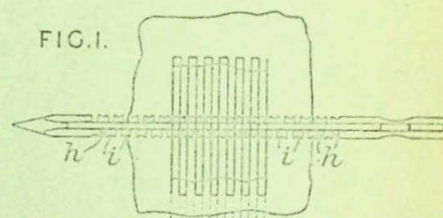
238,301. Wade, H., (Mercury Mills, Ltd.).
May 15, 1924.



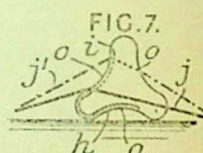
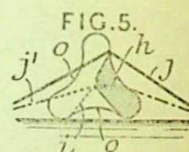
Knot-tying devices. — Knitting-machines are provided with knot-tying apparatus to enable changes of yarn to be made without stopping. The knoter is of known type and includes a bill hook K, operated by a lever K¹ which also operates clamping jaws K⁴. The lever K¹ is connected by pin-and-slot to an arm K⁶ on a vertical spindle K⁷ at the lower end of which is an arm K⁸ carrying a roller capable of being operated by a cam 20. Normally the roller is held out of action by a sector S¹⁷ which supports a projection K⁹ on the spindle K⁷. The sector is slidably and rotatably mounted on a shaft S¹¹ and is moved to engage any one of the yarn guide fingers such as S¹, and to release the projection K⁹, by means of a pin S¹⁸ passing through the sector and carried by a disc S¹⁹ which is connected by a rod S¹² to a bell-crank S¹³. The sector is moved axially by means of a sliding rod and by a grooved cam S²³ carried by a bell-crank S²⁴ connected by a link S²⁵ to an arm S²⁶.

The bell-crank S¹³, the arm S²⁶ and an arm S¹² carrying a dog S³¹ are all mounted loosely on a spindle S¹⁴. The yarn selecting means is operated by means of an eccentric S³³ pivoted to the arm S³². The dog S³¹ is thus constantly oscillated and when a cam S²⁸ connected to the arm S²⁶ and having high and low surfaces engages with its slow surface a pawl S²⁹ on the bell-crank S¹³ the dog S³¹ is able to engage the pawl and the eccentric S³³ oscillates the disc S¹⁰. The bell-crank S²⁴ is connected to a lever 28 carrying an anti-friction roller bearing on a pattern chain 26 the studs on which determine the amount of axial movement of the sector S¹⁷. Specification 24290/12, [Class 74 (ii), Knitting &c.], is referred to.

238,885. Daugart (née Kroll), F. Aug. 20, 1924, [Convention date].

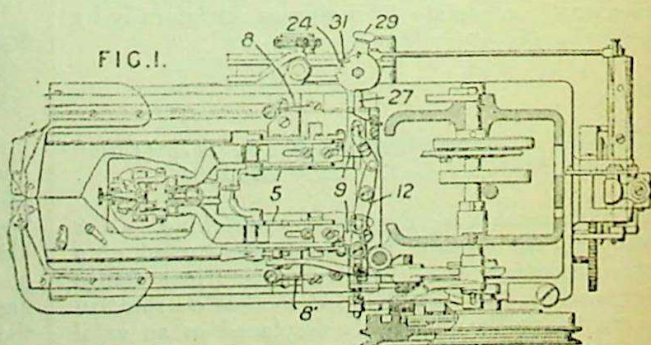


Darning. — Sheds of warp thread through which weft threads are passed by means of a needle are formed by a device in the form of a triangular prism having alternate deep and shallow grooves h, i in two of its edges each deep groove in one edge extending to a corresponding shallow groove in the other edge. The warp threads j, j' are caused to lie in these grooves and by turning the appliance from side to side are raised and lowered alternately in two sets or sheds a threaded needle being passed between these and along longitudinal grooves o in the appliance after every turn. The appliance may be made of bent sheet metal as shown in Fig. 7.



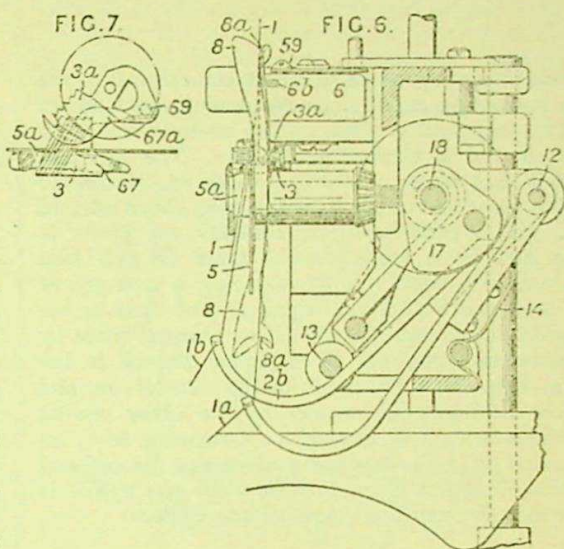
239,126. Fairweather, W., (Singer Manufacturing Co.). March 19, 1925.

Button-hole sewing-machines. — Clamp-spreading mechanism of the kind described in Specification 183,873 is provided with a device for regulating the inward movement of the spreading members. The clamp sections 5 are normally urged to their upspread position by springs 8. One of the slide blocks 9 to which the actuating lever 12 is connected has an extension 27 which is engaged by a cam 24 movable by a finger piece 29 to a degree ascertained from a scale 31 so as to limit the inward movement of the slide blocks and spreading members under the stress of the springs 8.



239,268. Spiers, W. May 30, 1924.

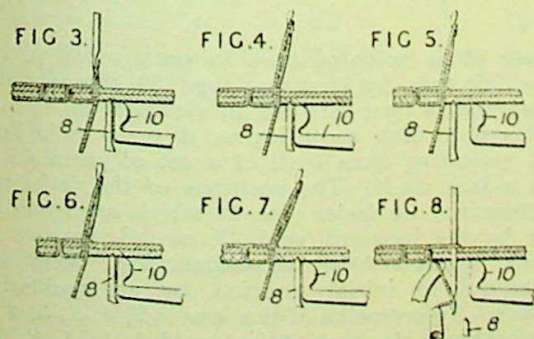
Knot-tying devices.—Relates to knot-tying devices for use particularly on knitting machines or the superposed cylinder type, as described in Specifications 24290/12 and 15008/00, [Class 74 (ii), Knitting &c.]. Yarns such as 1^b are led to corresponding fingers such as 2^b, from which one yarn proceeds to the needles while the others are held by trapping members 3, 3a. The running yarn 1 travels upwards in front of a fixed guide plate 5 to a non-movably mounted knot-tying device 6 which may be of the type described in Specifications 18778/00 and 2311/03 and thence to the needles. To knot the running yarn to another, a finger is operated to bring its yarn 1a into the path of the looper element 8. The V-shaped yarn receiving end 8a then places both yarns across the tying bill and the clamping elements 6b. An extension on another guide plate deflects the yarns behind the blades of the bill. Meanwhile the part 8 throws the yarn 1a behind the plate 5 while the yarn 1 is brought between the two guide plates. The bill now rotates to form the knot, the yarn 1 and a short piece of the yarn 1a are cut off and, as the bill approaches the end of its movement, the loops are stripped therefrom while the joined yarns remain in the clamp 6b to enable the knot to be tightened. A reverse movement of the bill causes the old yarn to be trapped. The yarn fingers are pivoted on a shaft 12 and are held by springs 14 against a stop rod 13 excepting when depressed by the action of a cam 17. The cam is rotatable and slidable on a spindle 18 and is moved endways to engage one or other yarn finger by means of a slotted plate mounted on a bell-crank controlled by a pattern chain, the studs or dogs on which are of different heights. This plate and the cam 17 are moved to different extents according to the height of the controlling stud. The pattern chain is stationary when the knot-tying and yarn changing apparatus is inactive. The bill and clamp are actuated by a lever 59 from a cam through in-



intermediate means held out of action when the cam 17 is in normal position. The trapper comprises the plate 3 attached to a block 5a a spring finger 67 pivoted thereto and the hooked member 3a. Fig. 7 shows the normal position, with a pin 69 on the member 3a engaging the extension 67a of the spring finger to prevent it from trapping the yarns. During the operative movement of the bill the member 3a moves away, opens the main trapper and causes the yarns freed thereby to be trapped under the finger 67. On the return movement the hook of the member 3a engages the severed yarn and traps it. The severed ends are received in a trough. When splicing is to be done the running yarn is not severed. Specification 220,366 is also referred to.

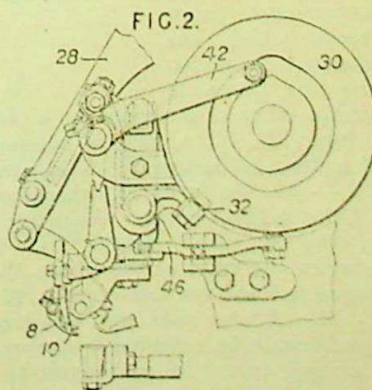
Reference has been directed by the Comptroller to Specifications 219,313 and 238,301.

239,279. British United Shoe Machinery Co., Ltd., (United Shoe Machinery Corporation). June 4, 1924.



Boot-sole sewing-machines; welting and turn-shoes; feed by awl.—In shoe-sewing machines

such for example as are described in Specifications 17328/08, 20711/09 and 20712/09 the work is



given a number of feed movements in each stitch-forming cycle in order to distribute the stitches

more uniformly at parts where the contour of the work changes rapidly. In the arrangement shown a two-step feed is given by the co-operation of an awl 8 and a channel-guide 10. The awl and guide and other stitching devices are similar to those described in the Specifications above referred to. Work-penetrating movements are given to the awl by a cam-operated lever 28 and feed movements by a roll 32 engaging a cam-groove in the disc 30. Work-engaging and feed movements are communicated to the channel-guide by respective levers 42, 46 engaging grooves in the cam-disc. The formation of the cam-grooves and their timing with respect to the other sewing devices is such as to produce a two-step feed, indicated by the successive positions of the awl and guide shown in Figs. 3 to 8, while the needle is passing through the stages of one cycle.

239,464. Singer Manufacturing Co.,
(Assignees of Allen, E. B.). Nov. 4, 1924,
[Convention date].

Stitches and seams. — A button-hole for knitted fabrics is formed by a zig-zag needle thread having alternately depth stitch and slit stitch loops 5, 4 concentrated by two looper threads, 7, 9 which alternately enter and are entered by the depth stitch and slit stitch loops and vice versa. The seam formed on the one side of the work by the concentrated needle and looper threads ties down a filler 12 of soft yarn, this being flattened out as shown in Fig. 3. A similar filler 14 may be used on the other side of the fabric. The ends of the seam are over-lapped to form a fly-bar.

FIG. 1.

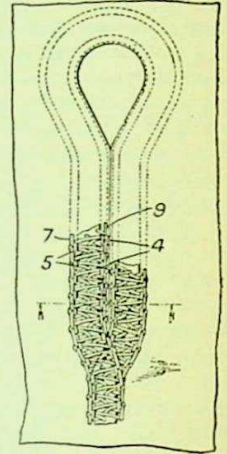
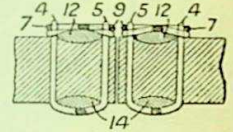


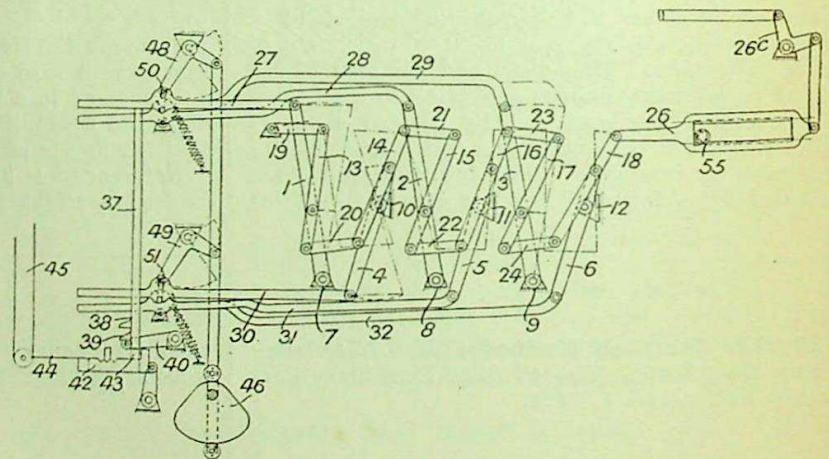
FIG. 3.



239,850. Maschinenfabrik Kappel Akt.-Ges. Sept. 9, 1924, [Convention date].

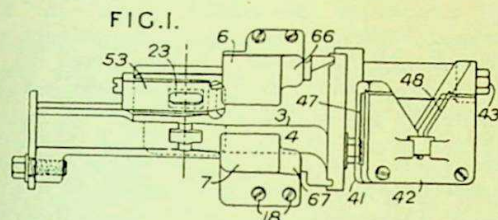
Embroidery machines.—

A jacquard - controlled device for converting the constant throw of a moving member into the variable movement of a work frame comprises a series of levers connected by links and pivoted intermediate of their ends to selectively moved adjusting levers which are also pivoted to fixed points. The work frame is operated from a rack 26 having upper and lower sets of teeth which are moved to engage a pinion 55 to move the frame to one side or the other of a normal by a jacquard-controlled lever 26^c. The rack is connected to the last of a train of levers 13 - 18 connected by links 20 - 24, the lever 13 being connected by a link 19 to a fixed pivot. Adjusting levers 1 - 6 pivoted at fixed points 7 - 12 are pivoted between the ends of the levers 13 - 18 and are connected to two sets of rods 27 - 29 and 30 - 32. These rods are selectively retained in position to be actuated by levers 48, 49 moved to a fixed extent in each cycle by a cam 46. The levers 48, 49 carry studs 50, 51 which engage notches in those rods which are retained in elevated position by fall rods 37, 38. A

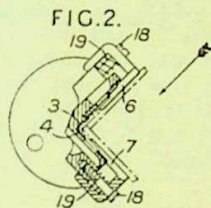


lever 40 is actuated once in each cycle to lift the fall rods by engaging lugs 39 thereon and each rod is then retained in elevated position or allowed to drop according as it rests on a butt 43 projecting from each of a set of jacks 42 or on a jack itself. The positions of the jacks are determined by feeler pins 44 which are operated on by the jacquard card 45 moved forward in each cycle. After operation the jacks are returned to initial position by an oscillating lever. By operation of the levers 1, 4, 2, 5, 3, 6 respectively the rack 26 is moved 1, 2, 4, 8, 16, 32 units and by combinations any number of units of movement up to 63 may be obtained.

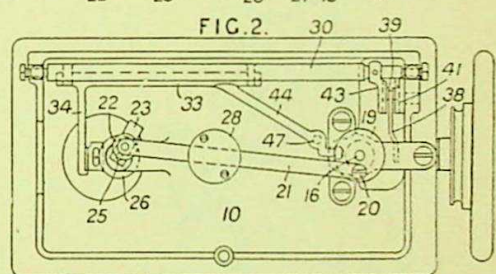
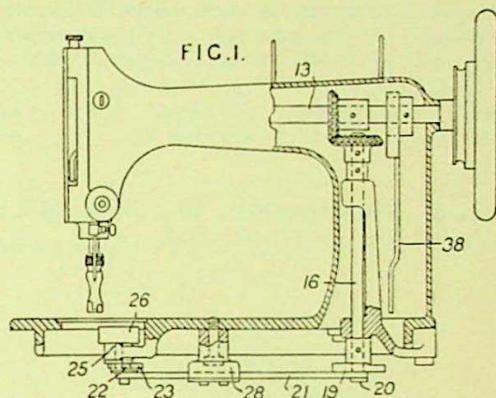
240,225. British United Shoe Machinery Co., Ltd., Bates, A., and Ricks, F.
June 25, 1924.



Sewing - machines; work guides. — A machine such as a bag corner sewing-machine for securing the edges of sheet material at an angle is provided with a guide for a binding-strip which presents the strip bent into an angular form for attachment by the stitching devices. Strip guides 6, 7 are resiliently mounted by means of screws 18 surrounded by springs 19 on the angularly disposed plates 3, 4 which form the support for the article to be stitched. In advance of the plates 3, 4 and secured to the machine-frame by a bolt 43 are a pair of plates 41, 42 having between them a slot 47 for guiding the strip and presenting it to the flared edges 66, 67 of the guides 6, 7. A notch 48 is cut out of the plates 41, 42 to permit the removal by a knife of a V-shaped part of the strip where an angle of the bag is to be sewn. The needle opening 23 is formed in a plate 53 adjustable relative to the angle of the external support. Specifications 174,419, 198,430, and 222,213 are referred to.



crank 20 on a shaft 16 geared to the top shaft 13. A radial arm 23 on the hook spindle 25 slidingly engages a slotted disc 22 pivoted to the end of the lever 21. A feed-bar 34 is fixed to a shaft 33 journaled in arms on a shaft 30. The shaft 33 is rocked to raise and lower the feed-bar by an arm 44 which bears on a face-cam 19 on the



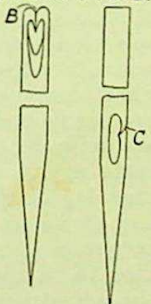
shaft 16 and is held in contact therewith by a spring-pressed pin 47 contacting with the underside of the base-plate 10. The shaft 30 is rocked to give the feed motion by an eccentric rod 38, carrying a slide-block 39 which engages in non-parallel grooves in a fixed bracket 41 and an arm 43 on the shaft 30. The bracket 41 may be adjustable to vary or reverse the feed.

240,326. Atkinson, J. G. Nov. 20, 1924.

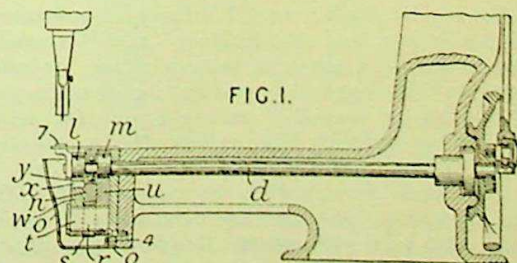
Sewing - needles; sewing-machine needles.—The eye of a sewing-needle is split at the end as at B to facilitate the introduction of the thread. A slit C sloping towards the point is provided in the eye portion of a sewing-machine needle.

Reference has been directed by the Comptroller to Specifications 19847/93, 7118/94, and 24364/95.

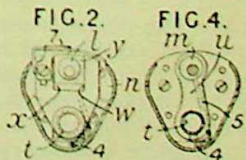
FIG. 1. FIG. 2.



240,543. Cook, J., Cook, J., and Cook, J., (trading as Cook & Sons, J.). July 2, 1924.



Sewing - machines; feed by dogs. — The feed dog 7 is mounted on a carrier plate w having a slot x which receives a block y in which rotates an

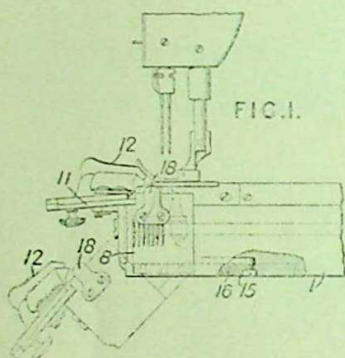


240,388. Nasmith, J. W. May 14, 1925.

Sewing-machines; lockstitching by hooks; feed by dog.—A rotary hook 26 is driven with variable speed by means of a lever 21 which is slidingly pivoted at 28 and is oscillated by a

eccentric *l* to give the feed movements. The carrier *w* is mounted on a hollow stud *t* which is carried by a bar *u* mounted on an eccentric *m*, the rotation of which effects the lifting movements of the dog. The stud *t* carries a block *s* located in a vertical guideway *r* in a distance-piece *n*. The lifting-bar *u* has a hole *5* for a wick which lubricates the eccentric *m* and stud *t* from a sump formed by a small partition *4* in the end cap *o*. The eccentrics *l*, *m* are secured on the shaft *d* which drives a looper or hook.

240,766. Fairweather, W., (Singer Manufacturing Co.). June 11, 1925.

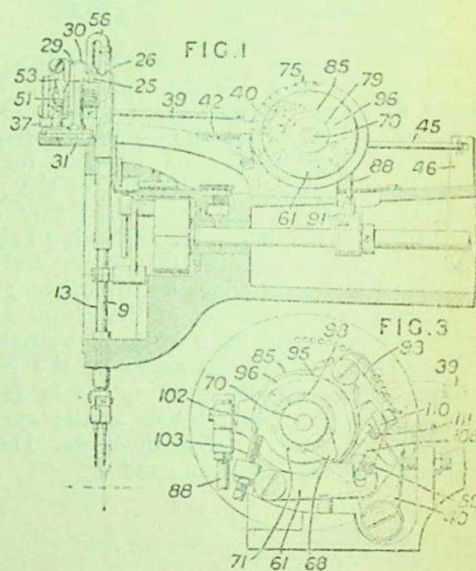


Sewing-machines; frames. — A cylinder-arm sewing-machine is provided with an end-cap 8 hinged at 16 to a slide-block 15 fitting in a dovetailed slideway in the underside of the arm 1 so that it may be drawn forward and turned downwardly. The cap is secured in position by spring fingers 18 which engage recesses in the arm. A platform 11 for an attachment such as a folder 12 may be secured to the front of the cap.

240,776. Fairweather, W., (Singer Manufacturing Co.). July 24, 1923.

Sewing-machines; needle-driving mechanism, disconnecting and controlling; multiple-needle machines. — A machine having means for temporarily throwing out of action one of a number of needles is provided with a device for automatically recoupling the needles after a predetermined number of stitches. The mechanism is of the kind described in Specification 228,085, and comprises an auxiliary needle-bar 13 which is coupled to a primary needle-bar 9 by a pin 26 sliding in a lug 25 to enter an aperture in the bar 9. The pin extends from a block 29 sliding on a vertical pin 30 which is mounted on a slide-block 31. The slide-block is pivoted to a rocking arm 37 connected by a link 39 to a lever 40 stressed by a spring 42 in a direction to hold the pin 26 in coupling position. The lever 40 is connected by a link 45 to a manually-actuated

lever 46. Uncoupling of the two bars except at the top of a stroke is prevented by a stop member 51. The needle-bar 13 is retained in disconnected position by a catch 53 until recoupled by mechanism described below. A spring-stressed buffer-rod 56 limits the upstroke of the disconnected needle-bar. The lever 40 is retained in position to keep the needle-bar disconnected by a spring latch 61 which engages a stud 59 on the lever. The latch is moved to release the stud after a predetermined number of stitches by a tappet 68 mounted on a shaft 70 which rotates within a sleeve 71 journaled in a bushing. An indicator disc 75 is fixed to the sleeve 71 and beyond the disc is a tappet-adjusting head 79 which may be locked at different positions to the disc by moving it endwise against the action of a spring and rotating it to vary the position of a locking-pin. An arm 85 mounted on the bushing 72 and continuously



oscillated by a pitman 88 and eccentric 91 and carries a pawl 93 adapted to engage the teeth 95 on a ratchet wheel 96 stressed by a coil spring 98 so that a stop 102 thereon engages an adjustable stop 103 on the framing. A stop pawl 108 prevents retrograde movement of the ratchet wheel during actuation by the pawl 93. When the needle-bars are coupled together, both pawls are held away from the wheel 96 by the engagement with a shoulder 110 on the pawl 108 of a stud 111 on the arm 40. In operation, the number of single-needle stitches to be made at a corner is determined by moving the graduated disc 75 to the desired index mark which causes the adjustment of the releasing tappet 68. When the disconnection of the needle is manually effected at the approach to a corner the pawls 93, 108 are allowed to engage the wheel 96 owing to the movement of the retaining stud 111 and the wheel 96 is then advanced step by step until the tappet 68 comes into operation to put the disconnecting mechanism out of action.

241,235. United Shoe Machinery Corporation, (Assignees of Lawson, R. H.). May 9, 1923, [Convention date]. Drawings to Specification.

Boot-sole stitching and lasting machines; starting and stopping gear; lasts, mounting.—In a shoe machine of the type in which operating devices are moved by automatic means progressively along a shoe supported on a jack, and provision is made for automatically compensating for curvature of the shoe, automatic means are provided for stopping the operating devices, these being lasting and sewing devices in the

machine described and thereafter moving the jack and shoe out of operating position and restoring the parts of the jack to initial position. Thread-cutting means are provided which come into action after the means operating on the shoe have been stopped and the jack has been depressed, and gauging means are provided in connection with the jack for positioning the shoe so that the operation is started at a determined point thereon. The invention thus broadly stated is carried into effect in the manner described in detail in Specification 215,772, of even date herewith. Specification 160,274, [Class 89 (iii). Nailing &c.], also is referred to.

241,433. Armstrong, J. J. V., (Union Special Machine Co.). Feb. 4, 1925.

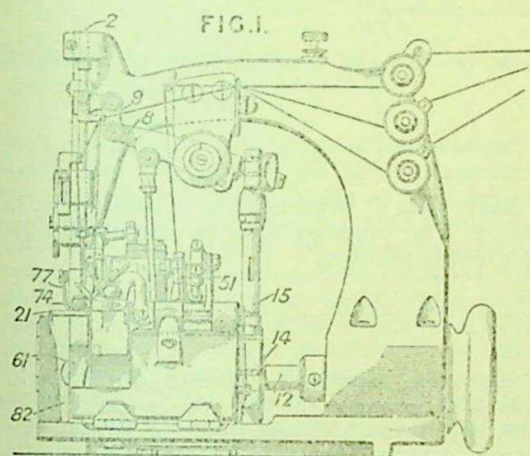
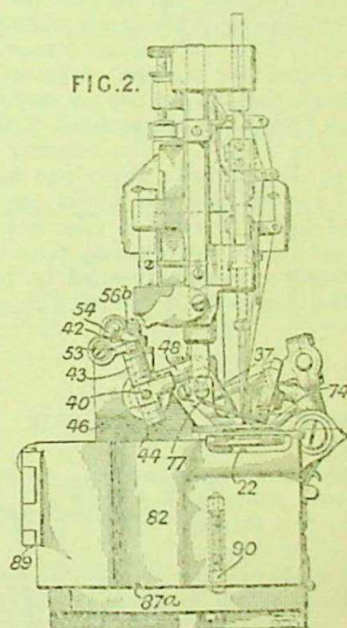
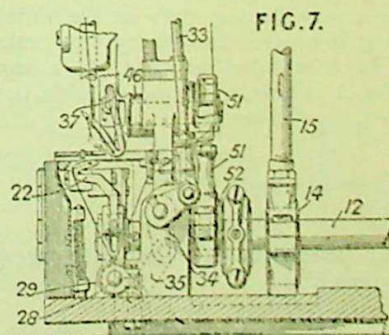


FIG. 2.



Sewing-machines; loop-stitching; needles, driving.—In an over-edge sewing-machine a threaded looper mounted above the cloth plate co-operates with the needle and with a threaded looper below the cloth plate, the first-named looper deriving its movements from a single eccentric carried beneath the work-support. The needle-bar 2 is reciprocated by mechanism comprising a link 9, lever 8, eccentric strap 15 and eccentric 14 on the main shaft 12. The under looper 22 is mounted in an arm secured to a shaft 28 oscillated so as to give the looper two strokes for every needle stroke through mechanism comprising a toggle linkage 34, 35 and a link 33 pivoted to the lever 8. The upper looper 37, which has an over-edge motion and concentrates its thread with those of the needle and under looper, is mounted on a carrier 40 secured to a shaft 42 mounted in bearings 43, 44 carried by the outer end of a sleeve 46 which is rocked by an eccentric device 51, 52 on the shaft 12 and an arm 48. An arm 53 on the upper end of the shaft 42 is connected by a ball-ended link 54 to a fixed bracket 56b so that as rising and falling movements are communicated to the looper by the eccentric and its connections it is also constrained to move to and from the needle and under looper.

Work supports; presser-feet.—The cloth plate 21 is supported by a bracket 29 which carries



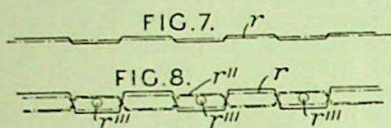
the upper looper mechanism and by a post 61. It is provided with slots for a main and auxiliary feed-dog and has a usual type of stitch finger. A presser-foot 74 is hinged to a presser-bar of usual type and is pressed against the work by a spring 77. The presser-foot has a plate provided with a stitch-finger above that on the cloth plate and this plate is cut away to provide space for a trimming mechanism.

Frames.—A cover-plate 82 associated with the cloth plate and hinged on a vertical pin 89 is

curved inward at 87^a to provide a space into which material may be brought in stitching

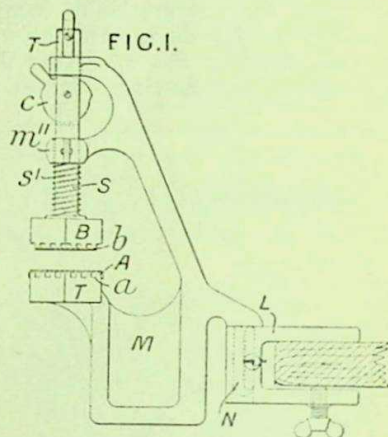
small tubular articles. The cover plate is held in position by a spring bolt 90.

241,672. Nunn, H. E. A. Sept. 4, 1924.



Darning.—A darning device comprises a pair of blocks A, B having on their faces interfitting projections *a*, *b* across which are two sets of grooves at right-angles. In darning the work is held between the blocks which are approached to such an extent that the work is somewhat distorted in a crenellated manner. A thread is then passed through the slots of one series and alternately above and below the sections of the work as shown at *r*, Fig. 7. The crossing threads have to pass alternatively above and below the first set of threads and the blocks are accordingly moved nearer together to raise and depress alternate sections of the darning threads. The crossing threads are then inserted as indicated at *r'''*. The appliance is mounted in a frame

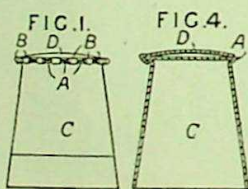
M having a stud and socket connection N with a table clamp L. The upper block B is carried by a shaft S pressed downwards by a spring S¹



so that a cam C bears against a bracket *m*¹¹. A tumbler T is provided to hold the shaft out of the working position.

241,700. Feer, M. Oct. 9, 1924.

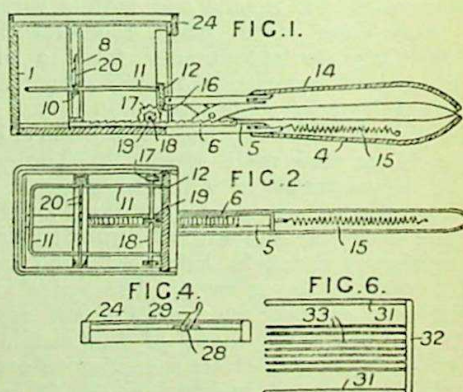
Thimbles.—A thimble is formed with a thread-cutting device thereon consisting of a disc or ring having a sharp edge over which extend a series of spaced lugs. The cutting edge A may be formed on the flanged body of the thimble C and the top D secured thereto by the protecting lugs B. In a modification, Fig. 4, a separate cutting disc A is secured to the thimble body by lugs formed on the top D.



241,900. Blockx, J. Oct. 21, 1924, [Convention date].

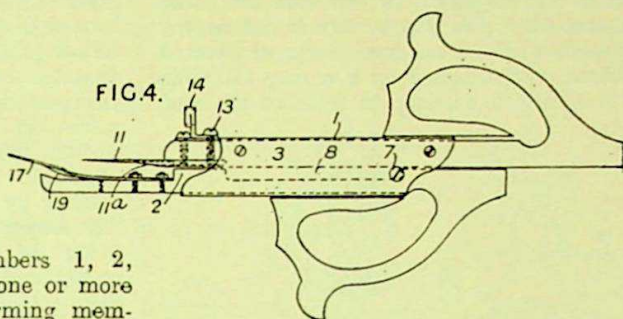
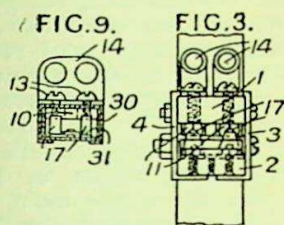
Darning.—A darning appliance comprises a gang of latch needles which are reciprocated through the work and traversed to effect the feed by hand operation. A bar 10 carrying the needles 20 is reciprocated in slides 8 within a casing 1 by the movement of handles 4, 14 which are stressed apart by a spring 15. The bar 10 is slidable on rods 11 secured to a bar 12 con-

nected to the handle 14. A rack 6 sliding in a guide 5 is secured to the frame carrying the slides 8. At each descent of the bar 12 teeth 16 thereon engage ratchet wheels 17 on a spindle 18 carrying a toothed wheel 19 which meshes with the rack so that the latter is fed one tooth. A frame 24 carrying a sliding bar 28 having two



hooks 29 is mounted at the top of the casing and at each stroke a yarn is led across the hooks 29, the bar serving to close the latches of the needles as they descend. The work is held in position by the frame 24 fitting on the casing. A cone device 31 - 33 may be employed to support the work.

242,110. McIntosh, W. Dec. 30, 1924.



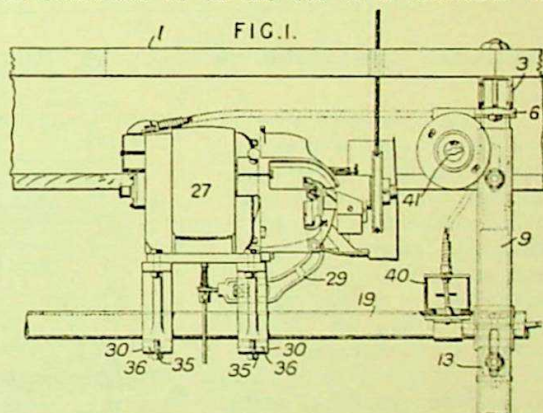
Hand sewing-tools. — Slide members 1, 2, Figs. 3 and 4, carrying respectively one or more needles 11 and co-operating loop-forming members 17 are respectively fixed and slidable within a casing 3, 4. The relative movement of the member 2 is limited by a pin-and-slot device 7, 8. The needles 11 are grooved at 11^a to guide the members 17, which are either resilient or, as shown, held against the needles by a spring

19. Yarn guides 14 are mounted by means of the needle-holder retaining-screws 13. In a modification, the needle-holder 10 and the members 17 are fixed respectively to channel members 30, 31, Fig. 9, slidable within one another, the relative movement being limited as before.

242,150. Fairweather, W., (Singer Manufacturing Co.). March 21, 1925.

Sewing-machines; driving.—Electromotors for driving sewing-machines and the like are adjustably supported independently of the table or bench top on tubular bars mounted on the standards which support the top, these bars forming conduits for the electric-current leads. A top 1 which may be of flat or trough form is supported by channel iron cross pieces 3 on adjustable standards 9. Cross members 13 are adjustably secured between standards and serve to support a tubular bar 19. The driving motor 27 is supported by a pair of yoke-shaped members 30 which embrace the bar 19 and are clamped thereto by a screw-bolt 35 passing through a cross-plate 36. The motor is engaged with a driving pulley by clutch means operated by a treadle-operated lever 29. The bar serves

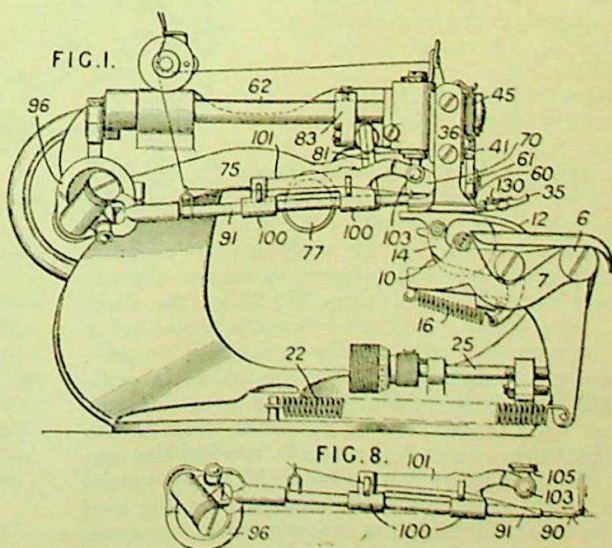
as a conduit for the cable, which passes through an outlet-box 40 on the bar to a controller 41



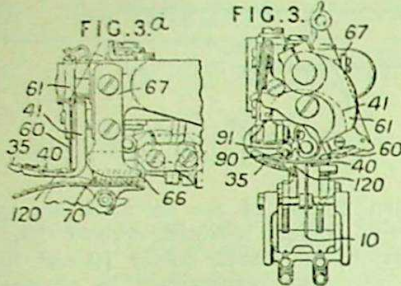
supported by one of the plates 6 which serve in securing the top to the channel irons 3.

242,207. Dearborn, C. A. Dec. 23, 1924, [Convention date].

Sewing-machines; blind-stitching machines. — Machines of the general type described in Specification 4474/06 and 19556/00 and provided with a presser foot formed in two parts, one of these being fixed and the other spring-mounted to admit of lateral displacement. A modified looper carrying a second thread is also provided. The machine is specially adapted for felling piped seams. In the machine described the work-supporting plates 12 are mounted on arms 14 controlled by springs 16. A ridge-forming disc 10 is mounted in a U-shaped frame 7 rocking on a pivot 6 and controlled by a spring 22, the position of the frame being adjustable by means of a screw 25 having a graduated head. The presser-foot comprises a fixed part 35 having a rib 120 and secured to a plate 36 mounted on the upper frame arme. The foot



35 carries a cloth-engaging member 130 to hold the cloth down adjacent to the disc 10. The movable part 40 of the presser foot is constituted by a blade formed on a curved lever 41 pivoted to the frame and stressed by a spring 45. The part 40 is arranged directly in front of the feed

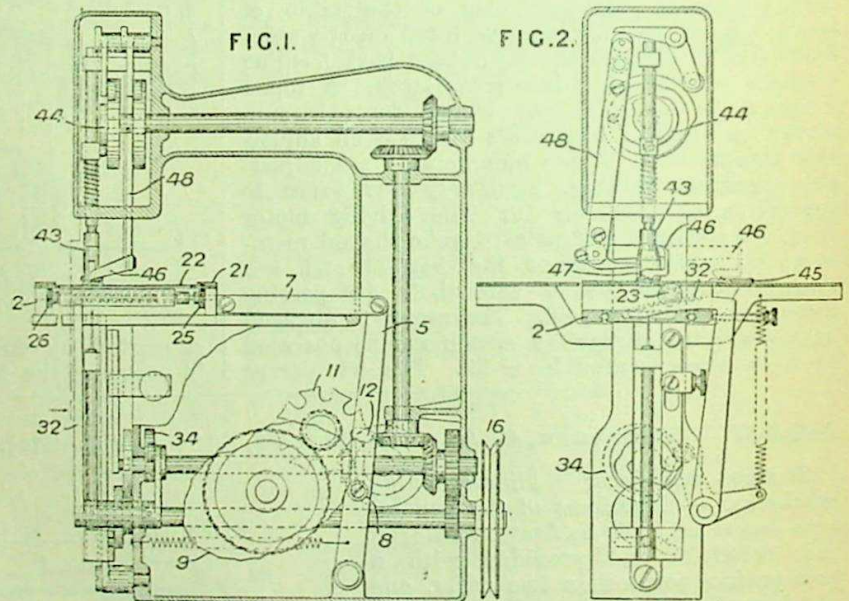


dog 70 and above the right hand work plate 12. A plate 67 secured on the side of the frame arm carries a shoe 66 which serves to keep down the work adjacent to the feed. The curved needle 60 is carried by an arm 61 and is actuated

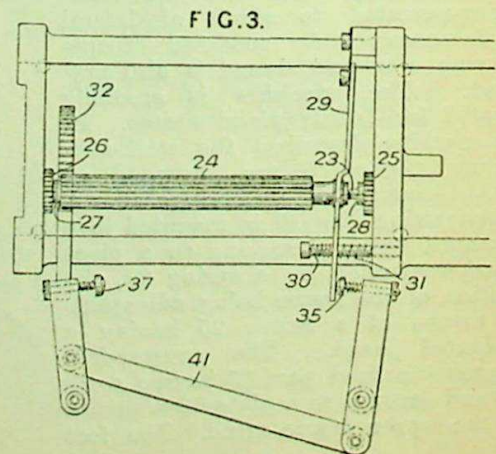
in known manner from an eccentric on the main shaft. The needle reciprocates in guide grooves formed in the sections of the presser foot. The feed-dog 70 operates above the work and is mounted on a bar 75 driven at its rear end by an eccentric on the main shaft, supported by a guide pin 77 and connected by a universally jointed link 81 to an arm 83 on the needle rock-shaft 62. The looper 90 is driven in known manner by a crank disc 96 on the main shaft. The looper bar 91 passes through guides 100 in a bar 101 pivoted at 103 to a vertical pin 105 eccentrically mounted in a vertical cylindrical block which may be locked in adjusted position in order to adjust the path of the looper. The looper mechanism enables the lateral throw of the looper to be made very small and its movements are all performed on the left side of the disc 10 looking from the front of the machine, as shown in Fig. 3. The inclined crank-pin by which the looper is driven causes a rotation of the end of the looper through an angle of 90° so presenting the eye in a convenient position for threading.

242,232. Haenicke, A. Oct. 29, 1924, [Convention date].

Button - attaching machines. — A machine for sewing buttons in rows on to cords or material is provided with means for automatically starting a new row at the finish of the one completed. A card 22 to which buttons are to be attached is mounted between guides 21 forming part of a frame provided with slides 2 which are traversed in the direction of a row



by a cam 9 engaging a roll 8 on a linkage 5, 7 connected to the slide. The cam is actuated step-by-step by a pin and star wheel drive 12, 11 geared to the driving wheel 16. The device for shifting the card laterally after a row of buttons has been attached comprises a pair of toothed wheels 25, 26 fixed on a shaft 23 and adapted to grip and advance the card when rotated. A long union 24 is rotatably mounted on the shaft and has a clutch member at each end adapted to engage alternatively with clutch members 27, 28 on the shaft 23. The pinion is moved to engage the clutches by an arm 29 held normally in disengaging position by springs 30, 31. The pinion 24 is oscillated idly, during the stitching of a row of buttons, by a toothed sector 32 driven from a cam 34 but when the end of a row is reached the arm 29 strikes against a stop 35 or 37 which causes one of the couplings to be engaged and the card to be moved through the space between two rows. The position of the stop members is adjusted by means of a bar 41. A button holder 43 raised



and lowered by a cam 44 holds each button in position for stitching. A button is fed into position beneath the holder by an arm 46 which is actuated by a rod 48 to engage a button manually placed in position against a gauge 45 and transfer it to the holder, points 47 on the arm

entering the holes in the button. It is stated in the Specification that means are provided to prevent the feeding of a button unless the points 47 are properly engaged in the holes in the button.

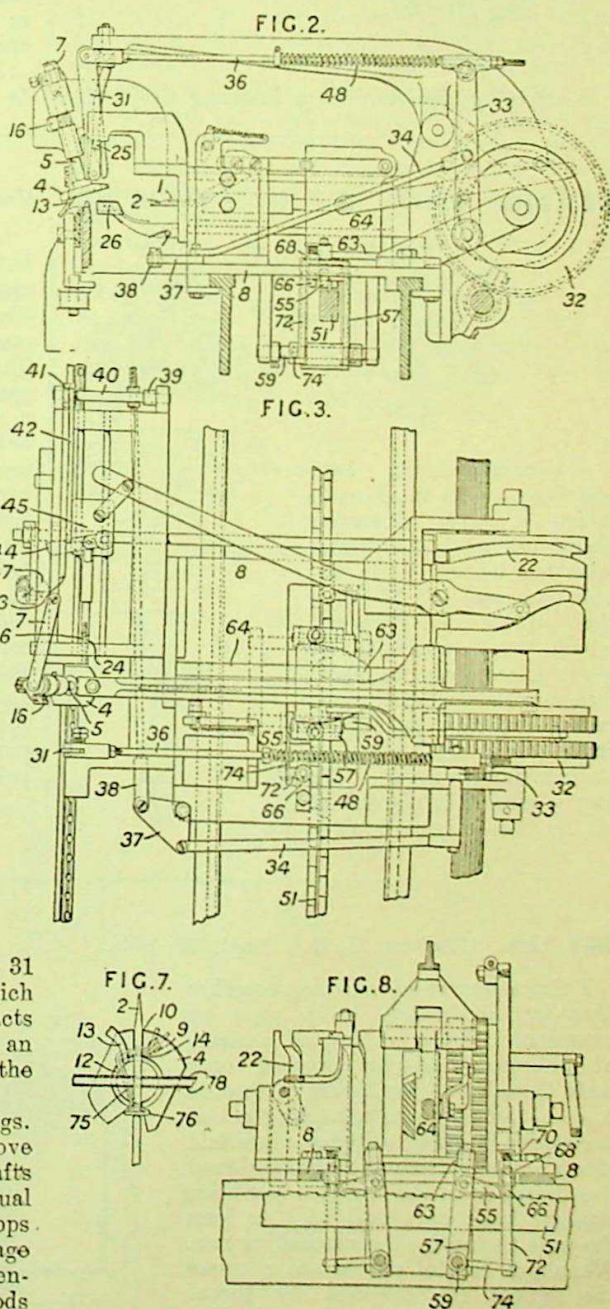
242,376. Felton, W., and Willber, C. Aug. 25, 1924.

Tufting-machines.—Relates to tufting machines of the type described in Specification 205,242.

Yarn looping and knotting. A disc 4, Fig. 2, mounted on an inclined spindle 5 and oscillated by a cam-operated rack 16, is perforated at 9, Fig. 7, to receive a yarn loop pushed through by a plunger 25, Fig. 2, on to loop-opening means 26. The disc is then rotated through over half a revolution to the position shown in Fig. 7, which is an underside view, so that a fixed finger 13 which engages in a groove 12 bends the yarn over a groove 14 which opens into a gap 10. The needle 2 is then thrust through the loop 76 and the foundation 78; the latch 1 is opened to engage the yarn ends 75, which are gripped and drawn back through the foundation and the loop 76. The spindle 5 rises against a spring 7 to allow the yarn to pass above the finger 13. The disc 4 then oscillates back to its initial position. The disc-operating cam 22, Fig. 3, can be adjusted relatively to the cams which operate the usual measuring and cutting means.

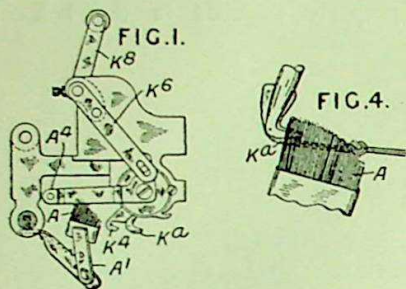
Yarn measuring and cutting. The pivoted member 46, Fig. 3, of the yarn-gripping means 24, 25 is opened to grip the yarn by the engagement of a cam-arm 44 linked thereto with a stationary yielding catch 47. The yarn is released and cut off by means operated from a single cam 32. A lever 33 operated by the cam 32 actuates the cutter 31 through the yieldable connections 48, 36, which allow of hand-actuation. The lever 33 acts through connections 34, 37—42, to actuate an arm 43 which operates the arm 44 to release the yarn.

Traversing mechanism. The pawls 55, Figs. 2 and 8, which coact with the rack 52 to move the carriage 8 are pivoted to arms 57 on shafts 59 on the carriage and are operated by the usual cam-member 63 on the needle-slide 64. Stops 66 slidably mounted in guides 68 on the carriage are pressed down against springs 79 by the engagements of arms 74 on the shafts 59 with rods 72 carried by the stops. The stops are so spaced laterally on either side of the coplanar pawls,



that during each traverse one stop coacts with the idle rack to prevent overrunning.

242,563. Withers, J. S., (Mercury Mills, Ltd.). July 8, 1925.

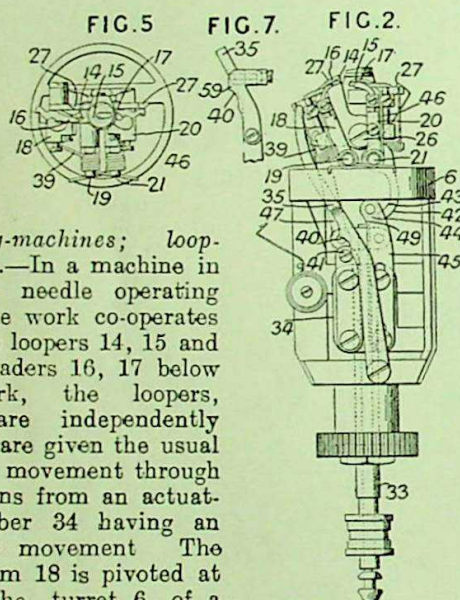


Knot-tying devices.—In a knotting device for

knitting machines of known type, and comprising a knotting bill from which the knot is stripped by a stripper, a device is provided for moving the knot along the threads so as to ensure the leaving of comparatively long tails and to prevent failure of the knot. The knotting bill K^a and stripper K^4 are actuated by link mechanism K^6 , K^8 which also serves to move an arm A^4 . A brush A supported by a spring-stressed arm A^1 is moved by a stud on the arm A^4 to engage the partly formed knot while the threads are still held by the knotting bill and push it along them as indicated in Fig. 4. Specifications 238,301 and 242,563 are referred to.

Reference has been directed by the Comptroller to Specification 255,994.

242,788. Imrie, H., (Reece Button Hole Machine Co.). Nov. 13, 1924.

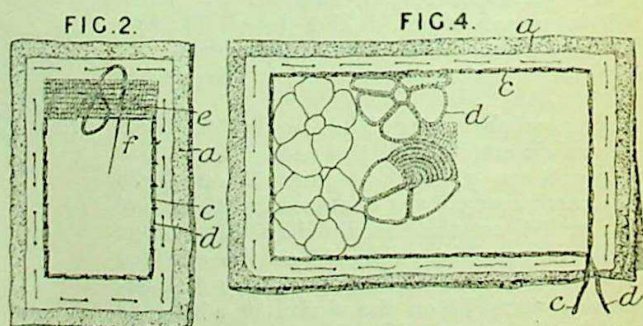


Sewing-machines; loop-stitching.—In a machine in which a needle operating above the work co-operates with two loopers 14, 15 and two spreaders 16, 17 below the work, the loopers, which are independently pivoted, are given the usual irregular movement through cam-means from an actuating-member 34 having an harmonic movement. The looper arm 18 is pivoted at 19 to the turret 6 of a

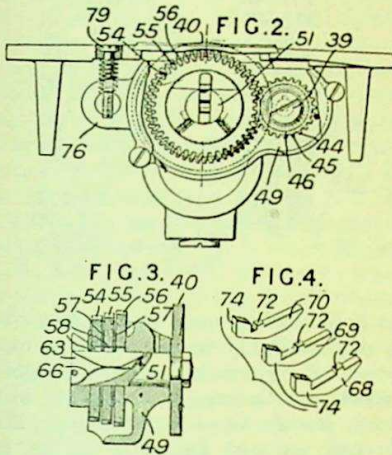
button-hole sewing machine and is held by a spring 39 in engagement with an actuating-lever 35, which is formed with a cam-surface 40 in engagement with a pin 41 on the member 34. The looper arm 20, pivoted at 21 on the turret, has a tail 42 formed with a cam 43 and held by a spring 46 in engagement with a pin 44 on an arm 45 adjustably fixed to the member 34. The member 34 is fixed to a sleeve 33 vertically reciprocated from an eccentric on the main-shaft. Spreaders 16, 17 pivoted on the looper-arms 18, 20 are actuated in the usual manner by the bevelled arms 27 of a bell-crank pivoted at 26 in the turret and actuated through a link 47 from a rod 49 which is reciprocated from a cam on the main-shaft. To adjust the timing of the loopers the member 34 can be adjusted on the sleeve 33. In a modification, the cam 40 of the lever 35 is formed on a member 59, Fig. 7, adjustably pivoted to the lever. Specification 10156/93 is referred to.

243,120. Toker, S. C. Sept. 23, 1924.

Fabrics formed by stitching together threads; embroidery.—A plain or ornamental fabric is formed entirely of interlaced stitches worked over weft threads. A bordering of threads c, d is tacked on to a backing a and successive rows of stitches e are laid down starting from the border thread, the thread from the end of a row being brought back as shown at f to form the weft thread for the succeeding row. When ornamental effects are required the figures are outlined by thread backed to a backing as shown in Fig. 4 and filled in as described above.



243,237. Fairweather, W., (Singer Manufacturing Co.). May 5, 1925.

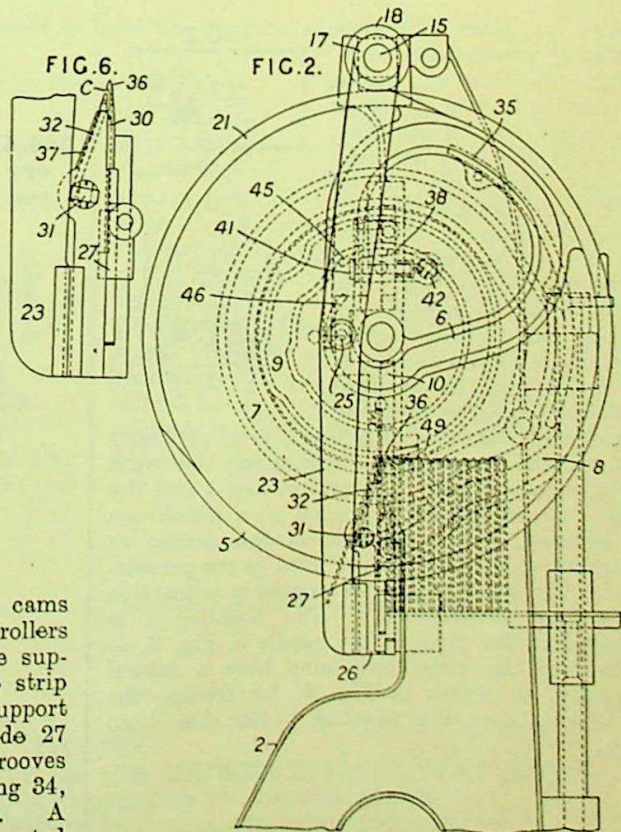


Sewing-machines; feed by wheels; variable-speed gearing.—A wheel feed of the continuous type is provided with change speed mechanism the variations of which are controlled by keys so that unauthorized alteration of the stitch

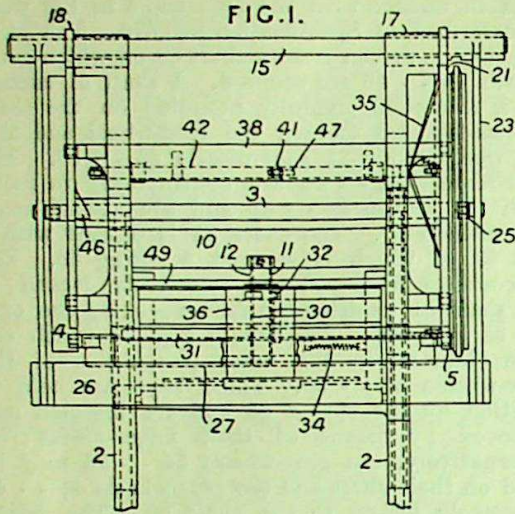
length by the operator is prevented. The mechanism is described in connection with a machine of known type in which the needle oscillates in unison with the feed while in the work as described in Specification 203,676. The feed-wheel 40 is driven from a shaft 39 on which gear-wheels 44 - 46 are secured. A shaft 51 carried by a frame 49 pivotally mounted on the shaft 39 has secured thereon the feed-wheel and also the freely mounted gear-wheels 54 - 56. The gear-wheels 54 - 56 are continuously in mesh with the wheels 44 - 46 and are spaced apart by washers 57. The shaft 51 is formed with a slot 63 in which is secured a spring 66. The gear-wheels 54 - 56 are selectively locked to the shaft 51 to drive the feed-wheel by one of a set of keys 68 - 70 having lugs 72 which engage slots 58 in the inner peripheries of the gear-wheels 54 - 56. These keys are held in position by the spring 66 and are inserted and removed by means of their finger-pieces 74. Alternatively, the gear-wheels 54 - 56 may be fixed on their shaft and the gear-wheels 44 - 46 selectively locked to the shaft 39. The frame 49 carrying the feed-wheel may be adjusted to vary the height of the wheel above the work-plate by an adjusting screw 79 tapped into an extension 76 of the frame.

243,303. Stäubli & Co. Geb. Nov. 20, 1924, [Convention date].

Book-stitching machines.—In a machine having eyed and hooked needles 11, 12 passing through the signatures to co-operate with loopers 32 within the saddle, the signature is supported on a saddle-plate 36, Fig. 6, which is cut away to form a loop-shedding incline *c*. The saddle is provided with a cover-plate 37. A shaft 15 is journaled in blocks 17 guided in the standards 2, Fig. 2, and carries the arms 23 of the work-support 26. The plate 36 is mounted on the support 26 and is vertically grooved for the passage of puncturing-needles 30 carried by a slide 27 mounted in the support 26. A looper-carrying slide 31 is also mounted in the support 26. Cam-discs 4, 5 at either end of the shaft 3 are formed with cam-grooves 6 for directly oscillating the work-support arms 23 through rollers 25. The work-support is raised, when under the stitching-rail 49, by peripheral cams 21 on the discs 4, 5 in engagement with rollers 18 on the shaft 15. The movement of the support away from the stitching-point acts to strip the sewn signatures therefrom. The support may be pivoted below the work. The slide 27 is directly reciprocated vertically by cam-grooves 8 and the slide 31 laterally against a spring 34, Fig. 1, by a face-cam 35 on the disc 5. A needle-carrying beam 10 is vertically reciprocated in the standards 2 by cam-grooves 7. A bar 38, vertically reciprocated in the standards 2 from



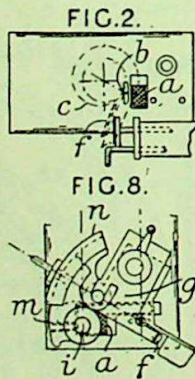
cam-grooves 9, carries a thread-tensioning pin 41 which is actuated periodically against its spring



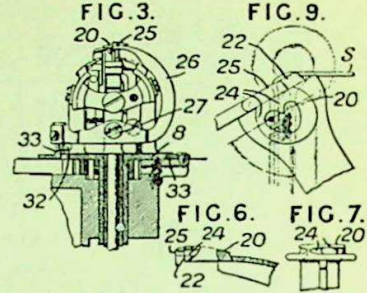
by a cam-member 47 on a slide 42 which is laterally shifted by face-cams 45, 46 on the discs 5, 4.

243,585. Grossmann, H., and Grossmann, A. Feb. 26, 1925.

Straw - plait sewing-machines; presser-feet; work-guides.—To allow of sewing the starting button of straw hats or the like by machine, the work-guide *f* is arranged on the presser-foot at an angle to the direction of feed, so that the centre of the work *c* is in front of the needle *b* in the direction of feed. The machine may be arranged for sewing the starting button only, or, as shown in Fig. 8, the guide can be arranged first at an angle to the direction of feed and, when the button is of sufficient size, parallel therewith for continuing the work in the usual manner. The presser-foot *g* and the guide *f* are attached to a curved jib *n* which can be adjusted, about the axis of the needle as centre, on an arcuate plate *m* fixed to the presser-bar *i*. The guide *f* may be angularly adjustable on a fixed presser-foot. The feed-dog *a* is arranged on the right of the needle *b*, Fig. 2, so as to feed the strip, and may have a lateral extension, as shown in Fig. 8, for feeding the work-piece when the starting button has been sewn.

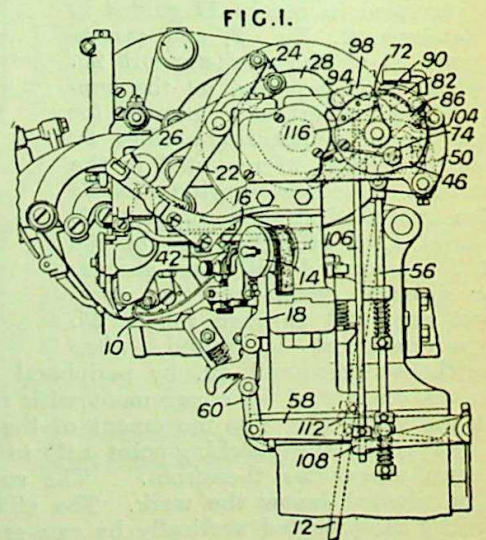


244,364. Fairweather, W., (Singer Manufacturing Co.). July 29, 1925.



Button-hole sewing-machines.—A movable cord guide is automatically actuated by a cam during the rotation of the turret so as to position the cord correctly with respect to the stitch line. The usual needle-throat member 20 has a widened cord passage 24 with which is aligned a narrow passage 25 in the movable guide 22. The guide is supported by an arm 26 pivoted at 27 to a post on the turret 8 and carries a roll 32 engaging a stationary cam 33 concentric with the turret. The cam surface is designed so as to compensate for the variations in the position of the cord otherwise introduced by the rotation of the turret. The manner in which the cord *s* is guided is shown in Fig. 9. The device is described as applied to a known type of machine comprising a jogging needle and a turret and stitch-forming mechanism rotated by sector gearing such as is described in Specification 236,844.

244,513. British United Shoe Machinery Co., Ltd., (United Shoe Machinery Corporation). Sept. 16, 1924.



Cutting. — In a welt-attaching machine provided with welt-slashing means operating on a part only of the welt, mechanism is provided

for automatically starting and discontinuing the slashing at a predetermined position, corresponding in practice to the toe of the shoe, the slashing device being placed at some distance from the point of operation of the welt-attaching device. In the arrangement shown, the welt is attached by sewing-devices of known construction controlled through a rod 12. The welt is fed over a roll 14 to a guide 10 through a guide 42 mounted on a slide 18 which is moved upwards at a determined time to bring the welt into the path of a reciprocating knife 16. The knife is mounted on a toothed slide-bar engaged by a toothed segment carried by a lever 22 actuated, through a link 24 and lever 26, by a cam-slot 28. The slide 18 is connected by toggle-levers 60 to a lever 58 connected by a rod 56 to a lever 50 engaging a cam-surface 46. When the elevated part of this cam engages the lever the slide is moved to hold the welt in the path of the knife. The cam is moved from a zero position, to which it is returned by a spring 104 by pawl mechanism co-operating with a mutilated ratchet-wheel 72 adjustably locked to the cam by a spring pin

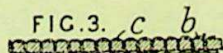
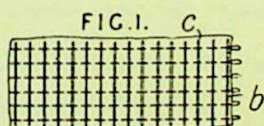
74. A spring pawl 82 is mounted on a lever 86 carrying a roll which engages the cam-groove 28, the lever being thereby oscillated to feed the ratchet wheel step by step. A lever 90 controlling the pawl 82 overtakes an arm 94 connected to a stop pawl 98 which normally prevents the backward motion of the ratchet wheel. By varying the relative positions of the ratchet wheel and cam 46 as indicated by a pointer 116 the distance of the first of the slashes from the severed end of the welt is varied so as to adjust the position of the slashed part to coincide with the toe of a shoe in accordance with varying sizes of shoe. After the lever 50 has ridden off the elevated part of the cam 42 the welt-supporting slide moves out of the path of the knife and the cam ceases to move when the pawl reaches the end of the toothed part of the ratchet wheel. At the conclusion of an operation the stop rod 12 acts through a lever 112, 108 to lift a rod 106 which engages the lever 94 and lifts the stop-pawl 98, whereby the cam 42 is allowed to be returned to zero position by its spring. Specification 5453/12 is referred to.

APPENDIX

The following abridgment should be inserted in place in this volume.

225,737. Bjerre, E. Fabricius-. Feb. 6, 1924.

Fabrics formed by stitching together fibrous materials. — Fibrous or cellular substance such as wadding, peat fibres, felt, waste sponges, &c., which may be sterilized, freed from grease, or otherwise treated, is formed into an endless band and then rolled and folded. It is then covered on one

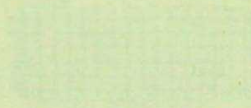


or both sides with a gauze-like facing comprising rows of chain stitches *b* drawn through the fabric and loose threads *c* arranged at right-angles thereto below the chain stitches. The material is cut, provided with straps or bands and then used for swabs, children's or breast napkins and towels &c. For use as children's napkins, the material is formed into a triangular shape with cut-away tips and is thickened where the absorption of liquid is specially required. The fibrous material may be formed in two layers, one being absorbent and the other waterproof. Specification 13605/10, [Class 142 (iv), Woven fabrics &c.], is referred to.

LONDON

PRINTED UNDER THE AUTHORITY OF HIS MAJESTY'S STATIONERY OFFICE
BY THE COURIER PRESS, BEDFORD STREET, LEAMINGTON SPA
PUBLISHED AT THE PATENT OFFICE, 25, SOUTHAMPTON BUILDINGS,
CHANCERY LANE, LONDON, W.C.2.

APPENDIX



PRINTED UNDER THE AUTHORITY OF THE LIBRARY OF CONGRESS
BY THE NATIONAL LIBRARY OF MEDICINE
WASHINGTON, D. C. 20540
1964

ILLUSTRATED ABRIDGMENTS OF SPECIFICATIONS

2s. each volume for each period (including inland postage).

(A.)—Classified in 146 volumes for each of the following periods dealing with all published specifications of the years 1855 to 1908 :—

1855-1866.	1884-1888.	1897-1900.
1867-1876.	1889-1892.	1901-1904.
1877-1883.	1893-1896.	1905-1908.

(B.)—Classified in 271 volumes for each of the following periods dealing with all specifications published during the years 1909 to 1925 :—

1909-1915.	1916-1920.	1921-1925 (<i>in course of Publication.</i>)
------------	------------	--

NOTICE.—The volumes for the periods 1921-1925, now in course of publication, can be obtained sheet by sheet, as printed, by payment in advance of a subscription of 5s. for each volume including inland postage, or 7s. 6d. including postage abroad.

(A.)—List of Classes, 1855 to 1908 (9 periods as above).

1. Acids, alkalies, oxides, and salts, Inorganic.
2. Acids and salts, Organic and other carbon compounds, (*including Dyes*).
3. Advertising and displaying.
4. Aeronautics.
5. Agricultural appliances, Farmyard and like, (*including the housing, feeding, and treatment of animals*).
6. Agricultural appliances for the treatment of land and crops, (*including Gardening appliances*).
7. Air and gas engines.
8. Air and gases, Compressing, exhausting, moving, and otherwise treating.
9. Ammunition, torpedoes, explosives, and pyrotechnics.
10. Animal-power engines and miscellaneous motors.
11. Artists' instruments and materials.
12. Bearings and lubricating-apparatus.
13. Bells, gongs, foghorns, sirens, and whistles.
14. Beverages, (*excepting Tea, coffee, cocoa, and like beverages*).
15. Bleaching, dyeing, and washing textile materials, yarns, fabrics, and the like, (*excepting Dyes*).
16. Books, (*including Cards and card cases and the like*).
17. Boots and shoes.
18. Boxes and cases, (*excepting Trunks, portmanteaux, hand and like travelling bags, baskets, hampers, and other wickerwork*).
19. Brushing and sweeping.
20. Buildings and structures.
21. Casks and barrels.
22. Cements and like compositions.
23. Centrifugal drying, separating, and mixing machines and apparatus.
24. Chains, chain cables, shackles, and swivels.
25. Chimneys and flues, (*including Ventilating-shaft tops*).
26. Closets, urinals, baths, lavatories, and like sanitary appliances.
27. Coin-freed apparatus and the like.
28. Cooking and kitchen appliances, bread-making, and confectionery.
29. Cooling and ice-making, (*including Refrigerators and Ice-storing*).
30. Cutlery.
31. Cutting, punching, and perforating paper, leather, and fabrics, (*including the general treatment of paper after its manufacture*).
32. Distilling, concentrating, evaporating, and condensing liquids, (*excepting Steam-engine condensers*).
33. Drains and sewers.
34. Drying.
35. Dynamo-electric generators and motors, (*including Frictional and influence machines, magnets, and the like*).
36. Electricity, Conducting and insulating.
37. Electricity, Measuring and testing.
38. Electricity, Regulating and distributing.
39. Electric lamps and furnaces.
40. Electric telegraphs and telephones.
41. Electrolysis, (*including Electro-deposition and Electro-plating*).
42. Fabrics, Dressing and finishing woven and manufacturing felted, (*including Folding, Winding, Measuring, and Packing*).
43. Fastenings, Dress, (*including Jewellery*).
44. Fastenings, Lock, latch, bolt, and other, (*including Safes and strong-rooms*).
45. Fencing, trellis, and wire netting.
46. Filtering and otherwise purifying liquids.
47. Fire, Extinction and prevention of.
48. Fish and fishing.
49. Food preparations and food-preserving.
50. Fuel, Manufacture of.
51. Furnaces and kilns, (*including Blowpipes and blow-pipe burners; Smiths' forges and rivet hearths; and Smoke and fumes, Treating*).
52. Furniture and upholstery.
53. Galvanic batteries.
54. Gas distribution.
55. Gas manufacture.
56. Glass.
57. Governors, Speed-regulating, for engines and machinery.
58. Grain and seeds, Treating, (*including Flour and meal*).
59. Grinding, crushing, pulverizing, and the like.
60. Grinding or abrading, and burnishing.
61. Hand tools and benches for the use of metal, wood, and stone workers.
62. Harness and saddlery.
63. Hats and other head coverings.
64. Heating, (*excepting Furnaces and kilns; and Stoves, ranges, and fireplaces*).
65. Hinges, hinge-joints, and door and gate furniture and accessories, (*excepting Fastenings, Lock, latch, bolt, and other*).
66. Hollow-ware, (*including Buckets, Pans, Kettles, Sauce-pans, and Water-cans*).
67. Horseshoes.
68. Hydraulic engineering.
69. Hydraulic machinery and apparatus, (*excepting Pumps and other means for raising and forcing liquids*).
70. India-rubber and gutta-percha, (*including Plastic compositions and Materials of constructive utility, other than metals and stone*).
71. Injectors and ejectors.
72. Iron and steel manufacture.
73. Labels, badges, coins, tokens and tickets.
74. Lace-making, knitting, netting, braiding, and plaiting.
75. Lamps, candlesticks, gasaliers, and other illuminating-apparatus, (*excepting Electric lamps*).
76. Leather, (*including Treatment of hides and skins*).
77. Life-saving, (Marine), and swimming and bathing appliances.
78. Lifting, hauling, and loading, (*including Lowering, winding, and unloading*).
79. Locomotives and motor vehicles for road and rail, (*including Portable and semi-portable engines*).
80. Mechanism and mill gearing.
81. Medicine, surgery, and dentistry.
82. Metals and alloys, (*excepting Iron and steel manufacture*).
83. Metals, Cutting and working.
84. Milking, churning, and cheese-making.
85. Mining, quarrying, tunnelling, and well-sinking.
86. Mixing and agitating machines and appliances, (*excepting Centrifugal machines and apparatus*).
87. Moulding plastic and powdered substances, (*including Bricks, building and paving blocks, and tiles, and Pottery*).
88. Music and musical instruments.
89. Nails, rivets, bolts and nuts, screws, and like fastenings.
90. Non-metallic elements.
91. Oils, fats, lubricants, candles, and soaps.
92. Ordnance and machine guns.
93. Ornamenting.
94. Packing and baling goods.
95. Paints, colours, and varnishes.
96. Paper, pasteboard, and papier mâché.
97. Philosophical instruments, (*including Optical, nautical, surveying, mathematical, and meteorological instruments*).
98. Photography.
99. Pipes, tubes, and hose.
100. Printing, Letterpress and lithographi-

LIST OF CLASSES

101. Printing other than letterpress or lithographic.
102. Pumps and other means for raising and forcing liquids, (*excepting* Rotary Pumps).
103. Railway and tramway vehicles.
104. Railways and tramways.
105. Railway signals and communicating-apparatus.
106. Registering, indicating, measuring, and calculating, (*excepting* Signalling and indicating by signals).
107. Roads and ways.
108. Road vehicles.
109. Ropes and cords.
110. Rotary engines, pumps, blowers, exhausters, and meters.
111. Sewage, Treatment of, (*including* Manure).
112. Sewing and embroidering
113. Ships, boats, and rafts, Div. I.
114. _____ Div. II.
115. _____ Div. III.
116. Shop, public-house, and warehouse fittings and accessories.
117. Sifting and separating.
118. Signalling and indicating by signals, (*excepting* Railway signals and communicating-apparatus).
119. Small-arms.
120. Spinning, (*including* the preparation of fibrous materials and the doubling of yarns and threads).
121. Starch, gum, size, glue, and other stiffening and adhesive materials.
122. Steam-engines, (*including* Details common to fluid-pressure engines generally).
123. Steam generators, (*excepting* Furnaces).
124. Stone, marble, and the like, Cutting and working.
125. Stoppering and bottling, (*including* Bottles, jars, and like vessels).
126. Stoves, ranges, and fireplaces.
127. Sugar.
128. Table articles and appliances.
129. Tea, coffee, cocoa, and like beverages.
130. Tobacco.
131. Toilet and hairdressing articles, and perfumery.
132. Toys, games, and exercises.
133. Trunks, portmanteaux, hand and like travelling bags, baskets, hampers, and other wickerwork.
134. Umbrellas, parasols, and walking-sticks.
135. Valves and cocks.
136. Velocipedes.
137. Ventilation.
138. Washing and cleaning clothes, domestic articles, and buildings.
139. Watches, clocks, and other timekeepers.
140. Waterproof and similar fabrics.
141. Wearing-apparel.
142. Weaving and woven fabrics.
143. Weighing-apparatus.
144. Wheels for vehicles, (*excepting* wheels for Locomotives and tramway and traction engines; Railway and tramway vehicles; and Toys).
145. Wood and wood-working machinery.
146. Writing-instruments and stationery, and writing-accessories, (*including* Educational appliances).

(B.)—List of Classes, 1909 to 1925
(3 periods as above).

- 1 (i), Chemical processes and apparatus.
- 1 (ii), Inorganic compounds other than metallic oxides, hydrates, oxyacids, and salts, (*including Alkali manufacture and Cyanogen compounds*).
- 1 (iii), Oxides, hydrates, oxyacids, and salts, Metallic, (*other than Alkali manufacture and Cyanogen compounds*).
- 2 (i), Acetylene.
- 2 (ii), Cellulose, Non-fibrous, and cellulose derivatives, (*including Artificial filaments, sheets, and the like containing same*).
- 2 (iii), Dyes and hydrocarbons and heterocyclic compounds and their substitution derivatives.
- 3 (i), Advertising and displaying apparatus, Moving and changing.
- 3 (ii), Advertising and displaying other than by moving and changing apparatus.
- 4, Aeronautics.
- 5 (i), Farmyard and like appliances, (*other than Housing and feeding animals*).
- 5 (ii), Housing and feeding animals, (*other than Chaff and vegetable cutters*).
- 6 (i), Cultivating implements and systems.
- 6 (ii), Gardening and like appliances, (*including Miscellaneous agricultural appliances*).
- 6 (iii), Harvesting appliances.
- 7 (i), Combustion-product and hot-air engines.
- 7 (ii), Internal-combustion engines, Arrangement and disposition of parts of, (*including Construction of parts peculiar to internal-combustion engines*).

- 7 (iii), Internal-combustion engines, Carburetting-apparatus, vaporizers, and heaters for.
- 7 (iv), Internal-combustion engines, Igniting in.
- 7 (v), Internal-combustion engines, Starting, stopping, and reversing.
- 7 (vi), Internal-combustion engines, Valves and valve gear for, (including Other means and methods for regulating and controlling internal-combustion engines).
- 8 (i), Air and gases, Compressing, exhausting, and moving, (including Bellows and Vacuum and like dusting and cleaning apparatus).
- 8 (ii), Air and gases, Treating otherwise than by compressing, exhausting, and moving.
- 9 (i), Ammunition and ammunition receptacles.
- 9 (ii), Torpedoes, explosives, and pyrotechnics.
- 10, Animal-power engines and miscellaneous motors.
- 11, Artists' instruments and materials.
- 12 (i), Bearings and bearing-surfaces.
- 12 (ii), Lubricating passages, channels, reservoirs, and baths, and lubricating cans.
- 12 (iii), Lubricators and lubricating bearing-surfaces, (other than Lubricating passages, channels, reservoirs, and baths).
- 13, Bells, gongs, foghorns, sirens, and whistles.
- 14 (i), Aerating liquids, and gazogenes, seltzogenes, and siphon bottles.
- 14 (ii), Beverages, malt products, and organized ferments, (other than Aerating beverages).
- 15 (i), Dyeing and otherwise treating textiles, textile materials, and the like with liquids and gases, Apparatus for, (including Bleaching and washing, Processes and materials for).
- 15 (ii), Dyeing, Processes and materials for.
- 16, Books, mercantile forms, and the like.
- 17 (i), Boots and shoes, Apparatus for making and repairing.
- 17 (ii), Boots and shoes, Construction of.
- 17 (iii), Boots and shoes, Protectors and trees and other accessories for.
- 18, Boxes and cases.
- 19, Brushing and sweeping.
- 20 (i), Buildings and structures, Kinds or types of.
- 20 (ii), Buildings and structures, Miscellaneous accessories and details applicable generally to.
- 20 (iii), Doors and windows and their accessories.
- 20 (iv), Floors, roofs, walls, and ceilings.
- 21, Casks and barrels.
- 22, Cements and like compositions.
- 23, Centrifugal machines and apparatus, (other than Centrifugal fans, pumps, and reels).
- 24, Chains, chain cables, shackles, and swivels.
- 25, Chimneys and flues, (including Ventilating-shaft tops).
- 26, Closets, urinals, baths, lavatories, and like sanitary appliances.
- 27, Coin-freed apparatus and the like.
- 28 (i), Bread-making, confectionery, and cooking-appliances.
- 28 (ii), Kitchen and like appliances other than cooking-appliances.
- 29, Cooling and ice-making, (including Refrigerators and Ice-storing).
- 30, Cutlery.
- 31 (i), Cutting and severing machines for paper, leather, fabrics, and the like.
- 31 (ii), Punching and perforating machines and hand tool for cutting, punching, perforating, and tearing paper, leather, fabrics, and the like.
- 32, Distilling and evaporating liquids, (including Condensing vapours and Crystallizing).
- 33, Drains and sewers.
- 34 (i), Drying gases, clothes, and materials in long lengths.
- 34 (ii), Drying systems and apparatus, (other than Drying gases, clothes, and materials in long lengths).
- 35, Dynamo-electric generators and motors, (including Frictional and influence machines, magnets, and the like).
- 36, Electricity, Conducting and insulating.
- 37, Electricity, Measuring and testing, (including Electric resistances and inductances).
- 38 (i), Electric couplings, and cut-outs other than electromagnetic and thermal.
- 38 (ii), Electric currents, Converting and transforming other than by rotary converters and rotary transformers, and condensers.
- 38 (iii), Electric motor control systems and motor and like controllers.
- 38 (iv), Electric supply and transmission systems and apparatus not otherwise provided for.
- 38 (v), Electric switches and electromagnetic and thermal cut-outs, (other than Motor and like controllers).
- 39 (i), Electric lamps, Arc and incandescent-arc, and vacuum or low-pressure apparatus for electric discharges through gases or vapours.
- 39 (ii), Electric lamps, Incandescent.

LIST OF CLASSES

- 39 (iii), Heating by electricity, (*including* Electric furnaces and ovens).
- 40 (i), Electric signalling systems and apparatus, (*other than* Telegraphs and Telephones).
- 40 (ii), Phonographs, gramophones, and like sound transmitting and reproducing instruments.
- 40 (iii), Telegraphs, Electric.
- 40 (iv), Telephones and telephone systems and apparatus, Electric.
- 40 (v), Wireless signalling and controlling.
- 41, Electrolysis, (*including* Electrodeposition and Electroplating).
- 42 (i), Fabrics, Finishing and dressing.
- 42 (ii), Fabrics, Treating otherwise than by finishing and dressing.
- 43, Fastenings, Dress, (*comprising* Buckles, Buttons, Jewellery, and certain other fastenings specially applicable to wearing-apparel).
- 44, Fastenings, Lock, latch, bolt, and other, (*including* Safes and strongrooms).
- 45, Fencing, trellis, and wire-netting.
- 46, Filtering and otherwise purifying liquids.
- 47 (i), Fire-escapes and fire and temperature alarms.
- 47 (ii), Fire-extinguishing and fire preventing and minimizing.
- 48, Fish and fishing.
- 49, Food preparations, food-preserving, and the like.
- 50, Fuel, Manufacture of.
- 51 (i), Furnaces and kilns, Combustion apparatus of, (*including* Details in connection therewith).
- 51 (ii), Furnaces and kilns for applying and utilizing heat of combustion, (*other than* Combustion apparatus and details in connection therewith).
- 52 (i), Furniture, Fittings and details applicable generally to, and articles of furniture not otherwise provided for.
- 52 (ii), Furniture for sitting and lying upon.
- 52 (iii), Tables, desks, and leaf turners and holders.
- 52 (iv), Upholstery, wall furniture, screens, and looking-glasses.
- 52 (v), Window, stair, and like furniture, brackets, racks, and stands, (*including* Antimacassars and Table and like covers).
- 53, Galvanic batteries.
- 54, Gas distribution.
- 55 (i), Coking and gas-producers.
- 55 (ii), Gas manufacture other than gas-producers and retorts.
- 56, Glass.
- 57, Governors, Speed-regulating, for engines and machinery.
- 58, Grain and seeds, Treating, (*including* Flour and meal).
- 59, Grinding, crushing, pulverizing, and the like.
- 60, Grinding or abrading, and burnishing.
- 61 (i), Hand-tool, brush, mop, and like handles.
- 61 (ii), Hand tools, (*other than* Wrenches and bolt, nail, screw, and like inserting and extracting tools and Boring and drilling tools).
- 61 (iii), Wrenches and bolt, nail, screw, and like inserting and extracting tools.
- 62, Harness and saddlery.
- 63, Hats and other head coverings.
- 64 (i), Heating liquids and gases.
- 64 (ii), Heating systems and apparatus, (*other than* Heating liquids and gases and Surface apparatus for effecting transfer of heat).
- 64 (iii), Surface apparatus for effecting transfer of heat, (*other than* Apparatus in which the heat is transferred from products of combustion).
- 65 (i), Door and gate operating-appliances, furniture, and accessories, (*other than* Fastenings, Lock, latch, bolt, and other and Hinges and pivots).
- 65 (ii), Hinges and pivots.
- 66, Hollow-ware, (*including* Buckets, Pans, Kettles, Saucepans, and Water cans).
- 67, Horseshoes.
- 68 (i), Excavating earth and rock, booms, buoys, canals and rivers, ferries, and water supply.
- 68 (ii), Subaqueous buildings and structures, diving, and raising sunken ships and objects.
- 69 (i), Hydraulic apparatus not otherwise provided for.
- 69 (ii), Hydraulic presses, meters, motors, and like apparatus for use with high pressures.
- 69 (iii), Spray-producers and liquid-distributing sprinklers and nozzles.
- 70, Indiarubber and guttapercha, (*including* Plastic compositions and Materials of constructive utility other than metals and stone).
- 71, Injectors and ejectors.
- 72, Iron and steel manufacture.
- 73, Labels, badges, coins, tokens, and tickets.
- 74 (i), Braid and braiding-machines, crochet, lace and lace-making, and net-making machines.
- 74 (ii), Knitting and knitted fabrics.
- 75 (i), Burners and burner fittings.
- 75 (ii), Lamp chimneys, globes, lenses, shades, reflectors, and smut-catchers, and holders therefor.
- 75 (iii), Lamps for lighting and heating, Details and accessories applicable generally to, (*including* Lighting burners, pipes, cigars, and the like).
- 75 (iv), Lamps for lighting and heating, Kinds or types of, (*including* Lighting, Systems of).
- 76, Leather, (*including* Treatment of hides and skins).
- 77, Life-saving, (Marine), and swimming and bathing appliances.
- 78 (i), Conveyers and elevators for dealing continuously with articles and materials in bulk.
- 78 (ii), Lifting, lowering, and hauling not otherwise provided for.
- 78 (iii), Lifts, hoists, and jacks.
- 78 (iv), Loading and unloading, (*including* Transporters and cranes).
- 78 (v), Winding and paying-out apparatus for lifting, lowering, and hauling, (*including* Pulley-blocks and the like).
- 79 (i), Locomotives and tramway, traction, portable, and semi-portable engines.
- 79 (ii), Motor vehicles, Arrangement and disposition of driving, transmission, balance, and reversing gearing on.
- 79 (iii), Motor vehicles, Arrangement and disposition of parts of, not otherwise provided for, (*including* Construction of parts peculiar to motor vehicles).
- 79 (iv), Motor vehicles, Frames and undercarriage work of.
- 79 (v), Motor vehicles and locomotives, Steering and controlling.
- 80 (i), Gearing, Belt, rope, chain, toothed, and friction, and gearing for converting and conveying rotary or reciprocating motion.
- 80 (ii), Gearing, Variable-speed, differential, and reversing, and for stopping and starting, and shafting and its accessories.
- 80 (iii), Link-work, cams and tappets, and ratchet and screw-and-nut gearing.
- 80 (iv), Mechanism not otherwise provided for.
- 81 (i), Disinfecting and deodorizing, and medical and like preparations.
- 81 (ii), Medical, surgical, and dental appliances.
- 82 (i), Metals, Extracting and refining, and alloys.
- 82 (ii), Washing granular, powdered, and like materials, and amalgamating, cleaning, coating, and granulating metals.
- 83 (i), Casting and moulding metals.
- 83 (ii), Metal articles and forms, Combination apparatus and processes specially designed for producing and treating.
- 83 (iii), Metals, Cutting.
- 83 (iv), Metals, Working.
- 84, Milking, butter-making, and cheese-making.
- 85, Mining, quarrying, tunnelling, and well-sinking.
- 86, Mixing and agitating machines and appliances.
- 87 (i), Bricks, building and paving blocks, slabs, tiles, and pottery.
- 87 (ii), Moulding plastic and powdered substances, (*including* Casting substances other than metals and Presses, Mechanical).
- 88 (i), Musical instruments, Automatic.
- 88 (ii), Music and musical instruments other than automatic.
- 89 (i), Bolts, studs, nuts, washers, and rivets.
- 89 (ii), Hooks, nails, cotters, pins, staples, wedges, and wood-screws.
- 89 (iii), Nailing and stapling and wire-stitching.
- 90, Non-metallic elements.
- 91, Oils, fats, lubricants, candles, and soaps.
- 92 (i), Ordnance and machine-gun carriages and mountings.
- 92 (ii), Ordnance and machine guns.
- 93, Ornamenting.
- 94 (i), Packing and wrapping-up for transit and storage, (*including* Baling).
- 94 (ii), Paper bags, sacks, wrappers, and the like, (*including* Making envelopes).
- 95, Paints, painting, and the like.
- 96, Paper, pasteboard, and papier mâché.
- 97 (i), Optical systems and apparatus.
- 97 (ii), Surveying, navigational, and astronomical instruments.
- 97 (iii), Thermometers, meteorological and mathematical instruments, and miscellaneous philosophical instruments.
- 98 (i), Photographic cameras and auxiliary apparatus therefor.
- 98 (ii), Photographic processes and apparatus other than for taking photographs, (*including* Photographic plates, films, and papers).
- 99 (i), Pipes and tubes, Joints and couplings for, (*including* Joints for tubular framework and like Wire and rod couplings and joints).
- 99 (ii), Pipes, tubes, and hose, (*other than* Joints and couplings for).
- 100 (i), Feeding and delivering webs and sheets.
- 100 (ii), Printing processes and apparatus, (*other than* Type setting and composing).

LIST OF CLASSES

- 100 (iii), Type making, setting, and composing, (*including* Type-bar-making machines).
- 100 (iv), Typewriters and like machines.
- 102 (i), Pumps, Reciprocating, for liquids, (*including* Steam-engine air-pumps and Combined pumps for liquids and gases).
- 102 (ii), Water and other liquids, and semi-liquids, Raising and forcing otherwise than by pumps.
- 103 (i), Brakes and retarding-apparatus.
- 103 (ii), Rail and road vehicles, Details applicable generally to.
- 103 (iii), Railway and tramway vehicles, Accessories for.
- 103 (iv), Railway and tramway vehicles, Body details and kinds or types of.
- 103 (v), Railway and tramway vehicles, Draught, coupling, and buffing appliances for.
- 103 (vi), Railway and tramway vehicles, Undercarriage and underframe details of.
- 104 (i), Railway and tramway crossings and points and switches.
- 104 (ii), Railway and tramway permanent way other than crossings and points and switches, and railway and tramway systems other than electric.
- 104 (iii), Railways and tramways, Electric, (*including* Electric traction).
- 105, Railway signals and communicating-apparatus.
- 106 (i), Calculating, counting, and cash-registering apparatus.
- 106 (ii), Dynamometers, gauges, measures of length, steam-engine and like indicators, and testing-apparatus.
- 106 (iii), Fares and admission-fees checking, revolution and speed indicators, and odometers.
- 106 (iv), Indicating, recording, and registering apparatus not otherwise provided for.
- 106 (v), Measured quantities delivering, measures of capacity, and sampling liquids.
- 107, Roads and ways.
- 108 (i), Road vehicles, Body details and kinds or types of.
- 108 (ii), Road vehicles, Undercarriage details and draught appliances for.
- 108 (iii), Springs and vibration-dampers.
- 109, Ropes and cords.
- 110 (i), Centrifugal and screw fans and pumps.
- 110 (ii), Rotary engines, pumps, blowers, exhausters, and meters, (*including* Rotary pump plant).
- 110 (iii), Turbines and reactionwheels and motor power plant.
- 111, Sewage, Treatment of, (*including* Manure).
- 112, Sewing and embroidering.
- 113 (i), Ship and boat fittings and accessories, and pontoons and rafts.
- 113 (ii), Ships and boats, Kinds or types and structural details of.
- 114, Ships, boats, and rafts, Propelling, steering, and manœuvring.
- 115, Ships, boats, and rafts, Rigging, sails, and spars for, (*including* Boat raising, lowering, and disengaging gear).
- 116, Shop, publichouse, and warehouse fittings and accessories.
- 117, Sifting and separating.
- 118 (i), Indicators and burglar and like alarms.
- 118 (ii), Signals, (*including* Marine signals).
- 119, Smallarms.
- 120 (i), Spinning, Preparation of fibrous materials for, (*including* Obtaining, opening, carding, and like treatment of fibres in general).
- 120 (ii), Spinning, twisting, and winding yarns and threads, (*including* Winding cords, wire, and the like).
- 120 (iii), Yarns and threads and miscellaneous spinning accessories and processes and treatment of fibres.
- 121, Starch, gum, size, glue, and other stiffening and adhesive materials.
- 122 (i), Engine and like cylinders, connecting-rods, cross-heads and guides, flywheels, piston-rods, and pistons.
- 122 (ii), Steam-engine distributing and expansion valves and valve gear and valve-actuating arrangements therefor.
- 122 (iii), Steam engines, Kinds or types of and details not otherwise provided for, (*including* Steam and other fluid-pressure hammers and presses).
- 122 (iv), Steam engines, Regulating or controlling, starting, stopping, and reversing.
- 122 (v), Stuffing-boxes and substitutes therefor, (*including* Packing therefor).
- 123 (i), Liquid-level regulating, indicating, and registering, incrustation and corrosion preventing and removing, and door lids and covers for resisting fluid pressure.
- 123 (ii), Steam generators.
- 123 (iii), Steam separators and superheaters.
- 124, Stone, marble, and the like, Cutting and working.
- 125 (i), Bottles, jars, and like vessels, (*including* Non-refillable bottle, jars, and vessels).
- 125 (ii), Bottles, jars, and like vessels, Filling, opening, and closing, (*other than* Stoppers, lids, covers, and capsules).
- 125 (iii), Stoppers, lids, covers, and capsules, Bottle, jar, and like.
- 126, Stoves, ranges, and fire-places.
- 127, Sugar.
- 128, Table articles and appliances.
- 129, Tea, coffee, cocoa, and like beverages.
- 130, Tobacco.
- 131, Toilet and hairdressing articles, and perfumery.
- 132 (i), Amusement and exercising apparatus other than games and toys.
- 132 (ii), Games.
- 132 (iii), Toys.
- 133, Trunks, portmanteaux, hand and like travelling bags, baskets, hampers, and other wicker-work.
- 134, Umbrellas, parasols, and walkingsticks.
- 135, Valves and cocks.
- 136 (i), Cycle, velocipede, and like vehicle brakes, steering-mechanism, and miscellaneous accessories.
- 136 (ii), Cycle, velocipede, and like vehicle driving-mechanism, (*including* Human-power driving-mechanism for apparatus other than vehicles).
- 136 (iii), Cycles, velocipedes, and like vehicles, Kinds or types and structural details of.
- 137, Ventilation.
- 138 (i), Washing and cleaning buildings and domestic articles other than clothes and dry cleaning clothes and other absorbent materials.
- 138 (ii), Washing, mangling and wringing, ironing, and starching clothes.
- 139, Watches, clocks, and other timekeepers.
- 140, Waterproof and like fabrics.
- 141, Wearing-apparel.
- 142 (i), Looms, Driving, reversing, stopping, and starting, and loom shedding-mechanism and pattern cards, chains, surfaces, and the like.
- 142 (ii), Looms, Kinds or types of, and details not otherwise provided for.
- 142 (iii), Looms, Weft supplying, inserting, beating-up, cutting, doubling, and twisting in.
- 142 (iv), Woven fabrics and articles, and warping, leasing, balling, and beaming yarns, (*including* Pile fabrics and Floor coverings).
- 143, Weighing-apparatus.
- 144 (i), Wheels for vehicles, (*other than* Wheel tyres, Pneumatic and other elastic, and rims for use therewith).
- 144 (ii), Wheel tyres, Pneumatic and other elastic, and rims for use therewith.
- 145 (i), Wood, Cutting, (*other than* Sawing).
- 145 (ii), Wood, Working, (*including* Sawing).
- 146 (i), Filing paper and like sheets.
- 146 (ii), Stationery, wafers and seals, educational appliances, and ciphers and codes.
- 146 (iii), Writing-instruments, ink, and receptacles for writing materials.

FIFTY YEARS SUBJECT INDEX, 1861-1910.

A subject index of all complete specifications for the period 1861-1910 is published in 271 volumes corresponding to the new series of Illustrated Abridgment Classes (List B above). To some extent the headings in the "Fifty Years Subject Index" may be regarded merely as a compilation of the corresponding headings in the abridgment volumes, and, so far as this is the case, the Index may be used with the abridgments. But, generally speaking, the headings represent an improved and extended classification of matter, and it may often be found more convenient to use the "Fifty Years Subject Index" with the Specifications, as the contents of the new Index headings will not always be found collected in any one Abridgment Class.

For a continuation of the "Fifty Years Subject Index," the searcher should consult the Abridgment Volumes for the periods 1909-15 and 1916-20 and the annual and quarterly indexes from 1921 onwards.

The volumes are issued at sixpence each, post free.



